

Finding

Browns Gulch Timber Sale
Section 16, Township 7S, Range 3W

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INTRODUCTION

The Montana Department of Natural Resources has proposed a timber harvest in the Barton Gulch drainage located approximately 5 miles southwest of Virginia City, Montana. The proposed harvest would remove an estimated 530 MBF of Douglas fir, lodgepole pine and sub-alpine fir sawlogs from approximately 60 acres of forested school trust lands.

The state ownership in this vicinity consists of a 640 acre section surrounded by federal lands administered by the Bureau of Land Management. The existing Barton Gulch road nearly accesses the state section however a new road would need to be constructed on private land for 775 feet and on BLM land for 427 feet to access the state land. An additional 1.9 miles of new road would need to be constructed on state land to access the harvest units. A Temporary Road Use Agreement is pending with the BLM and has been obtained from the private landowner. New roads constructed under this proposal are planned to be closed through a combination of partial obliteration, trashing and re-contouring and re-vegetation to prohibit vehicle use after completion of the sale.

This tract is classified grazing, valued principally for its grazing resources and is part of the land grant held by the State of Montana in trust for the support of the specific beneficiary, in this case common schools.

DECISIONS TO BE MADE

I have reviewed the Environmental Assessment prepared for the Browns Gulch Timber Sale specifically to:

- 1) Decide if an Environmental Assessment is the appropriate level of analysis or if an Environmental Impact Statement should be prepared.
- 2) Select an alternative to implement based on the information provided in the EA and a finding that an EIS is not necessary.

ALTERNATIVES UNDER CONSIDERATION

There were 2 alternatives considered in the Final EA, including the No Action Alternative. There were two additional alternatives considered early on in the process but dropped from consideration due to a variety of environmental and economic concerns. The action alternative would harvest an estimated 530 MBF of timber from approximately 60 acres within 4 harvest units ranging in size from 4 to 29 acres. The harvest would be primarily a selection and group selection type harvest with the exception of one 8 acre clearcut with reserves. Approximately 2.1 miles of new road would be constructed and 0.8 miles of existing road reconstructed. The No Action Alternative would not conduct any timber harvest, road construction or road improvement activities.

ALTERNATIVE SELECTED

After reviewing the EA, comments received on the proposal and input received from resource specialists, I have decided to proceed with Alternative B: Action Alternative and proceed with the timber harvest.

I have selected this alternative because I believe it can be implemented in a manner that is consistent with the long-term management of the tract while generating an estimated trust income of approximately \$50,000. The timber harvest will treat an estimated 60 acres of forestland that is in an overstocked and under-productive due to inactive management.

I have rejected the No Action Alternative because the timber harvest can be conducted in a manner consistent with the State Forest Land Management Plan, existing uses of the tract and surrounding lands while producing trust revenue and other long term management benefits.

SIGNIFICANCE OF IMPACTS

Based on my review of the information provided in the EA, the project file and an on site review, I conclude that significant impacts would not occur as a result of implementing the selected alternative. Therefore an Environmental Impact Statement will not be prepared. I base this decision on the following considerations:

Water Quality, Water Yield and Soils: Proposed harvest units and roads have been located by design to avoid active stream channels and unstable soils. All harvest unit boundaries are located outside streamside management zones. There are no active stream channel crossings proposed during road construction. All newly constructed roads will be closed and seeded to rapidly reestablish vegetative cover. Best Management Practices for Forestry will be implemented to substantially reduce the potential for impacts to water quality and soils. A cumulative effects analysis indicates increases to water yield as a result of the proposed activities are very unlikely to occur due to the open range-like nature of the watershed, minor amount of timber harvest activity that has occurred in the past 15 years and lack of evidence of stream instability from increases in peak flows. The current and proposed harvest levels would be well below what is normally associated with detrimental water yield increases.

Impacts to Elk and Deer Winter Range: Although some winter elk and deer use of the project area occurs, it likely does not normally receive use by large numbers or for extended periods of time. The Montana Department of Fish, Wildlife and Parks has identified "key" winter areas that are used year after year or during harsh or extreme winter events. The nearest identified winter range is more than 3-4 miles from the project area.

Elk Security and Vulnerability: There is approximately 240 acres of dense forest habitat providing high quality hiding cover and an additional 205 acres of open grown mature forest providing moderate quality hiding cover on the project area. Historic fire events and terrain features likely have contributed to a naturally fragmented and patchy distribution of forested stands on the landscape in this area. The proposed harvest would harvest trees on approximately 60 acres and consequently reduce available cover by 13% on the state land and 1% within the 5760 acre wildlife analysis area. While there would be a minor reduction of cover as a result of the proposal any indirect or cumulative impacts to elk resulting from the cover removal would not be detectable and affect security at the hunting district level or affect the Department of Fish, Wildlife and Parks' ability to meet their elk management goals.

Threatened, Endangered and Sensitive Species: There is no documented use, nor is there appropriate habitat within the project area for any Threatened or Endangered Species. The DNRC maintains a list of sensitive species for which a fine filter habitat analysis is conducted on proposed forest management projects. The sensitive species list includes: flammulated owl, boreal owl, black-backed woodpecker, pileated woodpecker, northern bog lemming, harlequin duck, ferruginous hawk, mountain plover, peregrine falcon, and Townsend's big-eared bat. There is no documented use within the project area for any of the sensitive species. There is approximately 112 acres of Dry Douglas fir that is potential habitat for flammulated owls. The proposal would affect approximately 32 acres of the potential habitat and consequently have a minor adverse affect to flammulated owls. However, dry Douglas fir habitats are common in this region and suitable habitat is available on other ownerships as well.

Old growth: There are no old growth stands greater than five acres in the project area. There are however, scattered old relic trees and clumps of old Douglas fir trees on ridge tops and in areas that were protected from fires that were historically common in the area. Relic trees, snags and

downed woody debris, although uncommon, will be retained wherever a safety hazard is not a factor.

EXECUTION

Upon execution, this Finding becomes part of the Final Environmental Assessment for the Browns Gulch Timber Sale.

Signed

Garry Williams 5/24/02

Garry Williams
Area Manager
Central Land Office

BROWNS GULCH TIMBER SALE PROPOSAL
DRAFT ENVIRONMENTAL ASSESSMENT

SECTION 16 -T7S - R3W

DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

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MAY 22, 2002

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CHAPTER I – PURPOSE/MANAGEMENT OBJECTIVES

A. Purpose

The Montana Department of Natural Resources and Conservation (DNRC) proposes to initiate forest management and timber harvesting on state school trust lands in the Barton Gulch area. The Browns Gulch Timber Sale proposal is located in Section 16, T7S - R3W, which is located 5 air miles southwest of Virginia City, Montana, in Madison County.

The project proposal would address the management of Douglas-fir, lodgepole pine, Engelmann spruce and Subalpine fir timber on approximately 60 total acres. The estimated harvest volume would be 530 thousand board feet contained within 4 units. Construction of 1.9 miles of minimum standard road would be needed on the State ownership. Access to the State section would require the crossing of Bureau of Land Management and private lands and involve the construction of an additional 0.2 miles of new temporary road. The proposed action would be implemented in early summer of 2002 and completed by December 2005.

B. Project Need

The lands involved in this proposed project are held by the State of Montana in the trust for the support of specific beneficiary institutions such as public schools, state colleges and universities, and other specific state institutions such as the school for the deaf and blind (Enabling Act of February 22, 1889, 1972 Montana Constitution, Article X, Section 11). The Board of Land Commissioners and the Department of Natural Resources and Conservation are required by law to administer these lands to produce the largest measure of reasonable and legitimate return over the long run for these beneficiary institutions (Section 77-1-202, MCA). On May 30, 1996, the Department released the Record of Decision on the State Forest Land Management Plan (SFLMP). The Land Board approved the SFLMP's implementation on June 17, 1996. The SFLMP outlines the management philosophy of the DNRC in the management of the state forested lands, as well as sets out specific Resource Management Standards (RMS) for ten resource categories.

The Department will manage the lands involved in this project according to the philosophy and standards in the SFLMP, which states:

"Our premise is that the best way to produce long-term income for the trust is to manage intensively for healthy and biologically diverse forests. Our understanding is that a diverse forest is a stable forest that will produce the most reliable and highest long-term revenue stream... In the foreseeable future, timber management will continue to be our primary source of revenue and our primary tool to achieving biodiversity objectives."

C. *Project Objectives*

In order to meet the goals of the State Forest Land Management Plan, the Department has set the following project objectives:

1. Promote a diversity of stand structures and patterns for a long-term sustainable forest.
2. Maintain a semblance of historic forest conditions.
3. Generate revenue for the school trust through the harvest of timber from the project area.

D. *Relationship to the State Forest Land Management Plan*

In June 1996, DNRC began a phased-in implementation of the SFLMP, which established the agency's philosophy for the management of forested state trust lands. The management direction provided in the SFLMP comprises the framework within which specific project planning and activities take place.

The SFLMP also defines the RMS's, which guided the planning of this proposed action. The SFLMP philosophy and appropriate RMS's have been incorporated into the design of the proposed action.

E. *Other Environmental Reviews Related to the Project*

The Moore Gulch Timber Sale EA (DNRC / Bozeman Unit) has been completed with record of decision. The project involves school trust land parcel, Section 16-T5S-R2W (Moore Gulch). The parcel is located in the Tobacco Root Mountains, approximately 14 air miles northeast of the Browns Gulch Project area. Approximately 950 MBF of Douglas-fir and lodgepole pine is scheduled for harvest treatment from approximately 75 acres of State of Montana ownership. The project includes 0.3 miles of road reconstruction and 2.8 miles of new construction.

The Granite Creek Timber Permit EAC (DNRC/Dillon Unit) has been completed with record of decision. The project involves school trust land parcel, Section 36-T5S-R3W (Granite Creek) and is located in the Tobacco Root Mountains, approximately 10 air miles north of the Browns Gulch project area. Approximately 100 MBF of Douglas-fir is scheduled for harvest treatment from approximately 17.5 acres of State of Montana ownership.

The Idaho Creek Timber Harvest EA (DNRC/Dillon Unit) has been completed with record of decision. The project involved school trust parcel, Section 36-T7S-R4W (Idaho Creek) and is located in the Gravelly Range, approximately 4 air miles southwest of the Browns Gulch project area. 854 MBF of Douglas-fir and lodgepole pine was harvested on 82 acres of State of Montana ownership. The project was completed in 2000.

F. Agencies with Jurisdiction

There are three possible access routes to the proposed project and all would require a road use permit from the BLM. The preferred access route would use 8.5 miles of existing road under BLM management and require 427 feet of new road construction on BLM ownership in Section 15, east of the State parcel. A Road Use Application was submitted to the BLM on December 12, 2001. The permit is pending the decision maker's review in this EA and approval of the permit application by the BLM.

This access will also require a temporary road use agreement for 775 feet of new road construction on private land. The private party has been contacted and a temporary agreement has been secured.

Any activity that disturbs the naturally occurring vegetation is subject to review by the local County Weed Board. The DNRC has a Revegetative and Weed Management Plan on file with the County Weed Board. If an Action alternative is selected, the DNRC would file a site specific Weed Management Plan with the Weed Board.

A Stream Preservation Act Permit (124 Permit) is required for activities conducted by any government agency in a stream. The Action alternative proposes culvert installations that would require a 124 permit. Should the Action alternative be selected, a 124 permit will be applied for and the State will abide by all requirements.

The activity of burning slash would involve two agencies. Surface vegetation in Madison County falls under County jurisdiction. Burning permits are usually required. The Department of Environmental Quality regulates air quality. DNRC is a participant in the Montana Air Shed Coordinating Group planning effort to limit particulate production.

G. *The Decision To Be Made*

There are two decisions that need to be made regarding these alternative proposals.

The first is to decide which management alternative would best meet the management objectives and the objectives of the SFLMP.

The second decision is whether this Environmental Assessment adequately identifies the potential impacts of the selected alternative and the potential for those impacts to be significant.

H. *Initial Scoping and Public Involvement*

The public involvement process began with the publication of a Legal Notice in the Dillon Tribune on January 20 and 27, 1999.

Individual scoping notices were sent on January 14, 1999. (see List of Individual Scoping Notices)

I. *Resource Concerns*

Responses were received from the following:

- DNRC Specialists
- Montana Fish, Wildlife and Parks
- Bureau of Land Management
- Skyline Sportsmen's Association
- The Ecology Center
- American Wildlands
- MT Coalition for Appropriate Management of State Land
- Norman Ashcroft
- Lumber Products, Inc.
- R-Y Timber, Inc.

Montana Wood Products Association
Louisiana Pacific Corp.

The following concerns and issues were compiled from scoping responses for this proposed project.

- Water Quality, Water Yield and Soils
- Big Game Winter Range, Elk Security and Vulnerability
- Threatened, Endangered and Sensitive Species

J. Issues

1. Water Quality, Water Yield and Soils

There is a concern that a reduction in timber cover, new road construction and log skidding activities may adversely affect water quantity (water yield, channel stability), water quality (physical or chemical attributes), site conditions (soil loss from erosion, soil nutrient losses) and fisheries.

Timber harvest and road construction may impact water quality primarily by accelerating sediment delivery above natural levels to local stream channels and draw bottoms. These impacts could result from erosion from road surfaces, skid trails, log landings and by the removal of vegetation along stream channels. Newly constructed and existing roads with inadequate drainage features (not meeting BMP's) could increase sediment delivery to local stream channels and draw bottoms.

Cumulative watershed effects can be characterized as impacts on water quality and quantity that result from the interaction of disturbances, both human-caused and natural. Timber harvest activities may affect the timing of runoff, increase sediment yields, increase peak flows and increase the total annual water yield of the drainages.

Equipment operations during timber harvest on wet sites or sensitive soils may result in soil impacts that may affect soil productivity. Impacts can vary depending on area and degree of physical effects, amount and distribution of coarse woody debris retained for nutrient cycling.

Timber harvest and road construction activities may impact fish habitat primarily by increasing water temperatures, accelerating sediment delivery above natural levels to local stream channels and by decreasing large woody debris and shade cover through the removal of recruitable trees near the stream channel.

2. Big Game Winter Range, Elk Security and Vulnerability

There is a concern that the harvesting of timber could reduce cover important for the survival of wintering elk and that the proposed harvest of timber and road construction may reduce elk security cover and increase hunter access. This may increase the number of bull elk harvested during the first week of the hunting season, and that may subsequently require the MDFWP to further restrict hunter opportunity in the area. Concern also centers on existing effects of low security cover associated with previous logging activities on federal and private ownerships in Hunting District 330.

3. Threatened, Endangered and Sensitive Species

There are several wildlife species identified as "sensitive" by the DNRC that may use the Gravelly Range vicinity and surrounding area. There is a concern that the proposed

actions may have unacceptable impacts to these species as well as any sensitive plant species that may be in the vicinity.

These issues and other resource concerns will be addressed in further detail in Chapters III and IV of this document.

CHAPTER II - ALTERNATIVES

A. *Introduction*

This chapter explains how the alternatives were developed, and describes the No-Action alternative, the Action alternative, and the alternatives that were considered but not given detailed study and dismissed.

B. *Development of Alternatives*

Some of the issues identified above led to the development of mitigation measures that can be incorporated into the Action Alternative.

The No Action Alternative is evaluated as the basis for comparing the Action Alternative to the option of not conducting the project.

C. *Description of Alternatives*

1. Mitigation Measures for Action Alternative

- a. All new road construction is designed to meet minimum standard specifications.
- b. At the end of the project, most new road construction on the State of Montana ownership is to be physically closed at designated locations so they are impassable to motorized vehicles. Partial road obliteration and logging slash and brush will be the used, where practical, to discourage foot traffic along the right-of-way, then seeded with weed free grass seed.
- c. New road construction on BLM is expected to be made impassable through obliteration/recontouring. This type of road closure will depend on the specific conditions established in the Road Use Agreements.

- d. All road reconditioning would be designed to bring the existing haul routes up to BMP standards. The reconditioning would consist of minor blading, reshaping road drainage improvements where needed and construction of additional road drainage to reduce potential sedimentation problems.
- e. The access route through private land would be acquired for the sole purpose of implementing this proposal and is not designated for public access purposes.
- f. The timber sale agreement will require any damaged improvement to be repaired or replaced.
- g. Soil scarification will be kept to a minimum to limit potential noxious weed, soil and watershed impacts and meet silvicultural goals. Scarification is expected to range from 20 to 40%.
- h. Retention and distribution of at least 5 tons and up to 15 tons per acre of woody debris greater than 3" in diameter is planned for nutrient recycling and soil wood recruitment. This measure is meant to maintain soil productivity, seedling micro-climate, habitat for some species of small mammals, and old growth stand characteristics.
- i. Road construction will be minimized and located on the most stable ground feasible. All proposed road construction will be reviewed by the soil scientist for site specific mitigation designed to maintain slope stability.
- j. Road use and equipment operations during the harvest and post harvest activities will be limited to dry, frozen or snow covered ground conditions.
- k. Road drainage features will be installed concurrent with the construction and will be maintained throughout the course of the project.

- l. To minimize compaction and soil displacement, slash disposal methods would be limited to a combination of whole tree skidding, lopping and scattering, trampling, spot piling and possibly jackpot burning.
- m. All newly disturbed soils on road cuts and fills and recontouring measures would be promptly seeded to site adapted grasses to reduce weed encroachment and stabilize roads from erosion.
- n. To discourage introduction of weeds, all road construction and logging equipment will be power washed and inspected prior to being brought on site.
- o. DNRC would monitor the project area for two years after the completion of the harvest activities to identify if noxious weeds occur on the site. Money will be collected from the purchaser of the sale for the treatment of noxious weeds. If noxious weeds do occur, a weed treatment plan will be developed and implemented.
- p. All current Forestry Best Management Practices (BMP's) would be implemented as they pertain to the action alternative in the Environmental Assessment.
- q. All current Streamside Management Zone (SMZ) Laws and procedures would be followed as they pertain to the action alternative. No harvest is planned to occur within the SMZ's on the project area.
- r. If cultural resources, sensitive species, or threatened or endangered species are found in the area, the project would be suspended, pending further analysis by the appropriate resource specialist.
- s. Two snags or recruitable snags per acre, ≥ 21 " dbh, will be retained where applicable.
- t. Douglas-fir relic trees will be retained where applicable.

2. Alternatives Considered In Detail

There are 2 alternatives under consideration, including a no action alternative.

Alternative A – No Action

This No Action Alternative would not allow timber harvest, new road construction or road improvement activities. No revenue would be generated from timber harvest treatments. Revenue from licensed grazing and non-mechanized prospecting and recreational activities would continue.

Alternative B – Action Alternative Browns Gulch (Units T1, T2, C1 & C2)

Under this alternative, DNRC would harvest 4 units ranging in size from 8 to 29 acres, removing 530 MBF of sawtimber from a total of 60 acres. Harvest methods would employ traditional ground based yarding on 37 acres and skyline yarding on 23 acres. Stand treatment would be primarily a selective harvest in Douglas-fir stands removing 70-75% of the merchantable volume and clearcutting in stands composed predominately of Subalpine fir, lodgepole pine and spruce, removing up to 95% of the merchantable volume.

An estimated 2.1 miles of new road would be constructed and 0.8 miles of existing road reconstructed. Four dry crossings would require culverts, three of which would be removed at the completion of the project.

Access would be through Barton Gulch Road and require temporary road use agreements from the BLM and a private party.

Unless otherwise identified under the pending road use agreement, all new road on the BLM would require obliteration through recontouring and seeding. Road closure on the private and state ownership would consist of partial obliteration, debris and slash placement and seeding. This closure process would result in no net increase of open roads in the area.

3. *Alternatives Considered but Dismissed*

Action Alternatives

During the preliminary stages of the proposed project, two additional alternatives were considered. The first was similar to the initial proposal distributed in the scoping notice that included the State's Granite Creek parcel. This parcel was dropped and considered for a separate project.

The second alternative that was dismissed proposed additional and larger harvest units. It was dropped in response to concerns relating to elk security and management strategies.

Road Alternatives

Two additional access routes with existing road to the State Section 16 were considered (see Map II-2). Alternative 2 would have used the existing Alder Gulch/Hungry Hollow road system. Alternative 3 would have used the existing Barton Gulch road system. Both routes have sustained, excessively steep grades (20%+) prior to reaching the State section.

The preferred access route, Alternative 1, would require 0.23 miles of new road construction (427 feet on BLM lands and 775 feet on private lands) to reach the State section. No road reconstruction would be required.

Alternative 2 would have required an estimated 2.0 miles of road reconstruction and 2.0 miles of new road construction to reach the

State section. Alternative 3 would have required an estimated 0.5 miles of reconstruction and 1.0 mile of new road construction to reach the State section.

Both Alternative 2 and Alternative 3 would have required additional new road construction to stay within Best Management Practices guidelines and reasonable safety standards for log truck hauling. The new road construction would also have required switchbacks on steep slopes in excess of 50%+.

Due to excessive soil disturbance, additional new road construction and costs, these alternate routes were found to be economically and environmentally undesirable.

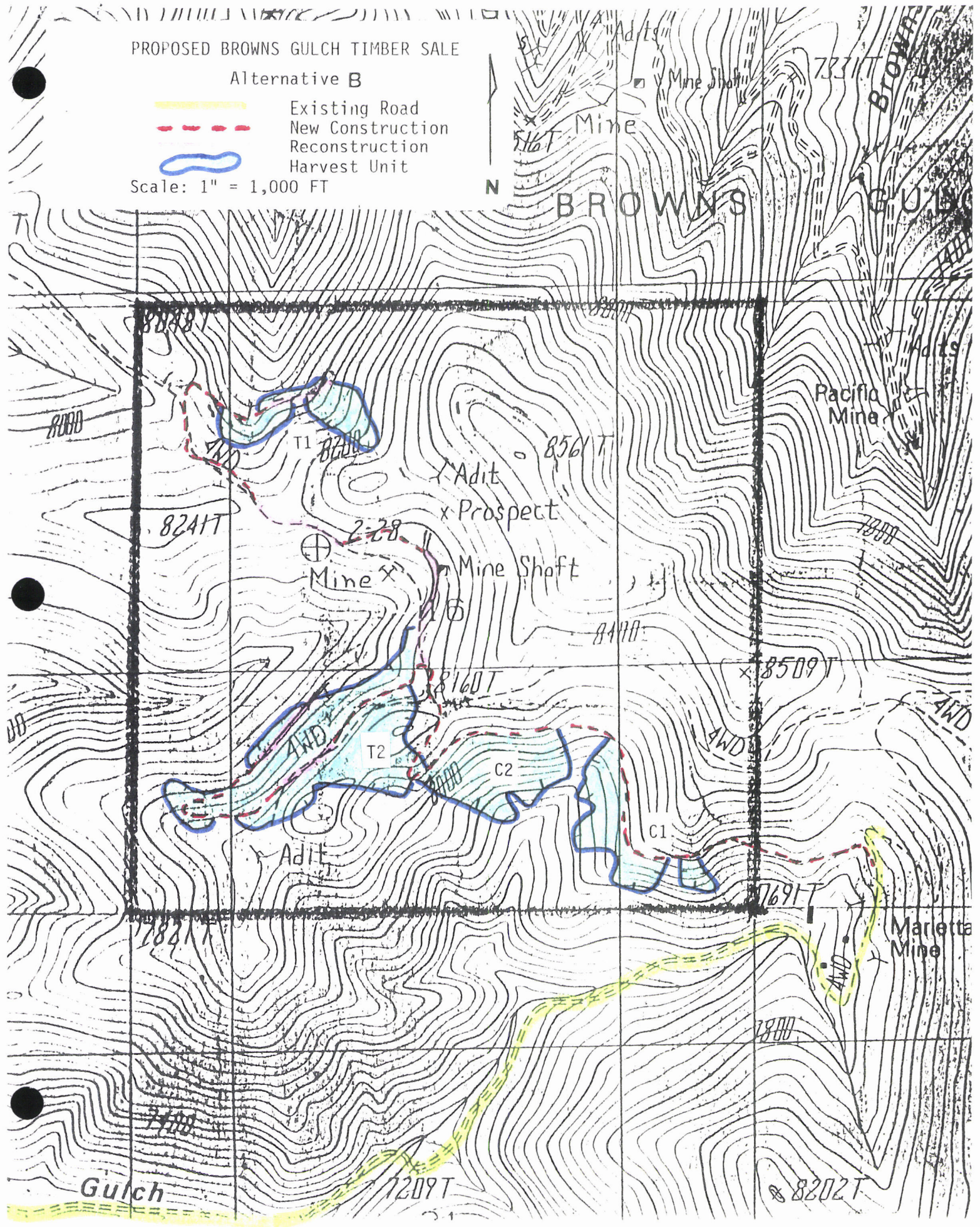
MAP II - 1

PROPOSED BROWNS GULCH TIMBER SALE

Alternative B

- Existing Road
- - - - New Construction
- Reconstruction
- Harvest Unit

Scale: 1" = 1,000 FT



MAP II - 2

BROWNS GULCH PROPOSED TIMBER SALE ROAD ALTERNATIVES

Alternative #1 - Bartons Gulch/Preferred

===== Existing Road

Alternative #2 - Alder/Hungry Hollow

----- New Construction

Alternative #3 - Bartons Gulch

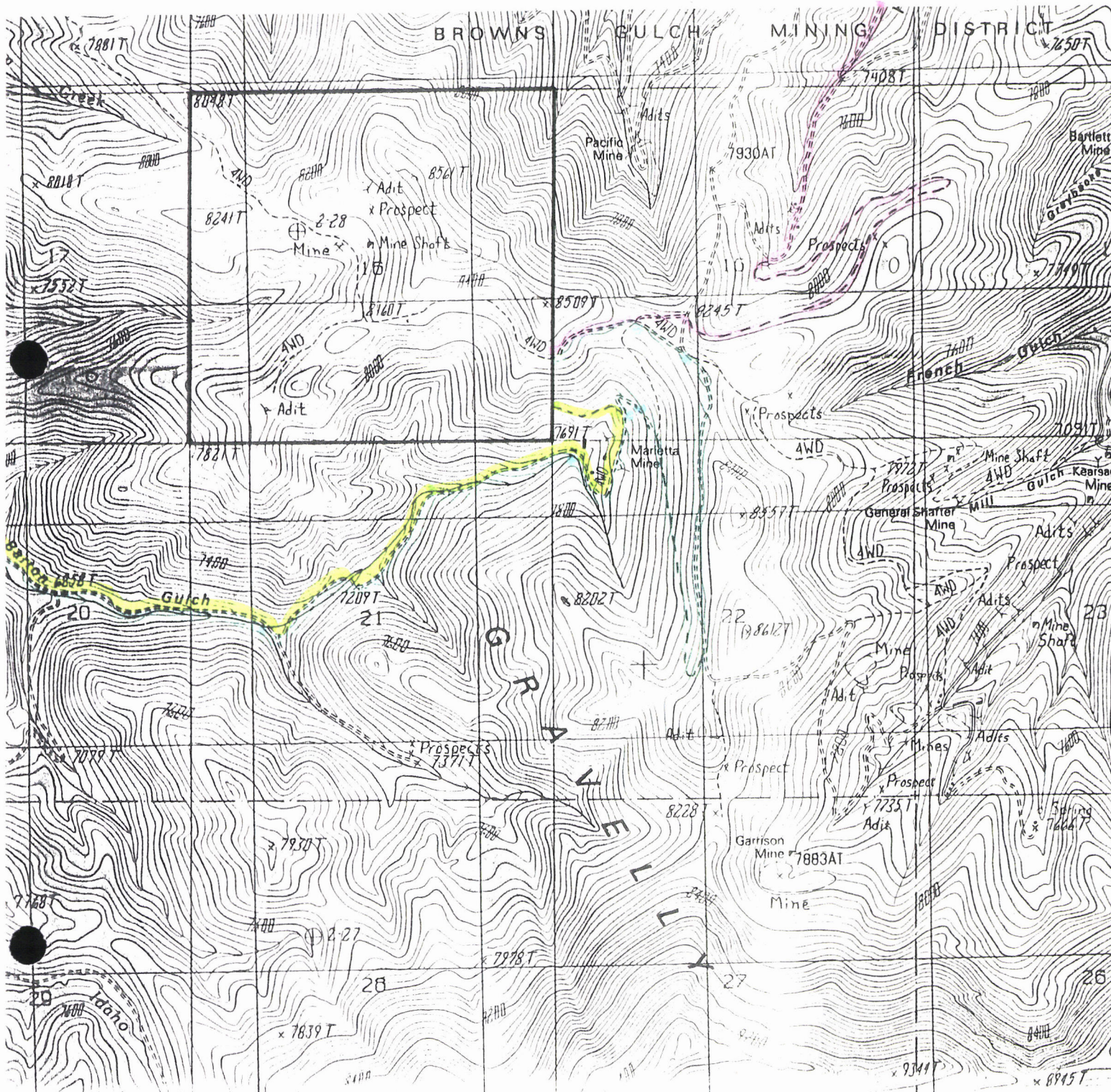


TABLE II - 1 SUMMARY OF TREATMENTS BY HARVEST UNIT

UNIT #	ACRES	NET VOLUME MBF	ESTIMATED % HARVEST VOLUME	TYPE OF HARVEST	ESTIMATED LEAVE TREE VOLUME MBF	ESTIMATED HARVEST VOLUME MBF
T1	8	80	95%	SEED TREE/ REGENERATION	5	75
T2	29	250	80%	SELECT/ REGENERATION	50	200
C1	10	120	70%	SELECT	35	85
C2	13	240	70%	SELECT	70	170
TOTALS	60 ACRES	690 MBF	AVE % HARVEST =76%		160 MBF	530 MBF

Table II-2: Summary of Alternatives and Effects

INDEX OF MEASURE	NO ACTION ALTERNATIVE	ACTION ALTERNATIVE
Estimated Harvest Acres	0 acres	60 acres
Estimated Harvest Volume	0	530 MBF
Number of Harvest Units	0	4 units
New Construction	0 miles	2.1

Proposed Activity or Environmental Component	No Action Alternative	Action Alternative Browns Gulch Units T1, T2, C1 & C2
Impacts on Vegetation		
Cover Types	Gradual increase of shade tolerant species	60 acres of Douglas-fir and lodgepole pine/subalpine fir cover type removed – 0.3% of forested area within watershed analysis area.
Successional Stages	Slow trend toward climax. Forests remain older than would be expected	60 acres of Douglas-fir, lodgepole pine and subalpine fir converted to seedling stage.
Old Growth	No old growth stands exist within the project area.	
Insect and Disease	Potential mortality from insect and disease infestations expected to slowly increase as stands increase in age	Reduction of susceptibility to insect and disease on the treated acres by relieving competition.
Sensitive Plants	No impacts anticipated	
Noxious Weeds	Weeds may establish presence on existing 4x4 roads	Integrated Weed Management Plan to develop a prevention and monitoring plan to address potential introduction of weeds on site. Includes power washing equipment, reseeding disturbed sites and a two year monitoring period for detection and control. A minimal increase in risk to weed establishment is expected.

Impacts to Watershed and Soils		
Water Yield	No increase in water yield	No detectable increases in water yield anticipated
Sedimentation	Continued impacts due to existing conditions	Minimal impacts anticipated
Fisheries	Continued impacts due to existing conditions	Minimal impacts anticipated
Soils	Inadequate drainage only partially meet BMP's	Implementation of mitigation will minimize impacts and maintain long-term productivity.
Impacts to Wildlife		
Elk Security	No immediate change	Minimal impact to Elk Security anticipated
Elk Vulnerability		Slight increase in Elk Vulnerability anticipated
Big Game Winter Range	No Impacts	This parcel is situated between two identified wintering areas. Minimal impacts are anticipated.

Canada Lynx	No Impacts	Due to small number of acres of subalpine fir habitat type and generally marginal lynx habitat, no impacts are anticipated.
Grizzly Bear	No Impacts	Newly constructed roads could reduce existing levels of security. All new roads will be blocked following treatment to minimize access. Adverse impacts are expected to be minimal.
Flammulated Owl	No impacts	Proposed treatments in potential habitat would likely reduce the density of mature trees to levels not preferred by flammulated owls. Minor adverse indirect and cumulative effects could be expected.
Ferruginous Hawk	No impacts	No impacts to ferruginous hawks are expected to occur as a result of this project. Should any ground-nesting hawks be observed within 400 meters of the proposed haul routes or active harvest units, harvest activities would cease and the DNRC biologist would be contacted for implementation of site-specific mitigation measures.

CHAPTER III - AFFECTED ENVIRONMENT

A. Introduction

This chapter presents the aspects of the affected environment that are relevant to the issues identified in Chapter II.

B. Background

1. Forest Vegetation

Lands within the proposed project area occur in mountainous country with generally broad and gentle ridge tops. Slopes range from 30-70% with an elevation range of 7,700 feet to 8,600 feet. The area is primarily forested (~70%) with interspersed grasslands (~30%). Dense pole-sized and mature forest comprises ~240 acres, while open mature and young forest comprises ~205 acres of the state parcel.

Southerly exposures are dominated by Douglas-fir with scattered trees and patches of lodgepole pine, limber pine and juniper. These stands are Douglas-fir/elk sedge habitat type and are <150 years of age containing a few scattered old remnant trees and clumps. Regeneration is sparse with little understory vegetation or coarse woody debris present.

Northerly exposures are mixed conifer species of subalpine fir, lodgepole pine, spruce and Douglas-fir with whitebark pine at the upper most elevations. These stands are primarily a subalpine fir/arnica habitat type. General stand age is <150 years and is comprised of densely-stocked timber < 10" dbh, moderately-stocked timber >10" dbh and a few scattered old remnant trees and clumps. Little understory vegetation or coarse woody debris is present.

Older trees (>150 years) primarily occur on ridge tops, creek bottoms and gentle topographic features. Large snags (>20" dbh) are rare but recruitment trees (>30" dbh) are available.

Encroachment occurs readily along edges of mature forest into areas that were non-forested grasslands around the turn of the century.

Primary understory species include: snowberry, big sagebrush, elk sedge, bluebunch wheatgrass, Idaho fescue, aster spp. lupine spp. low larkspur and wild strawberry. These species are also commonly observed in adjacent grasslands.

2. Cumulative Impacts and Harvest History

Historic mining activity was likely responsible for much of the old logging that occurred in this area (Losensky 1997). Evidence of these past harvesting activities within State ownership is evident in Units T1 and T2. Past and ongoing management activities in the project area drainages include mining, timber harvest, grazing, fire suppression and road construction. Previous harvest activities on BLM and private ownerships is evident.

Timber harvest activities have been minimal over the last 15 years, constituting approximately 1,458 acres of small clearcuts, selective and salvage cutting (~6.6% of the total watershed analysis area). Most of this activity took place from the late 1980's through the 1990's. Grazing activities are prevalent, with the bulk of the activities concentrating in the riparian areas.

3. Fire History / Ecology

Stands within the project area fall into fire groups 4, 5 and 6 (Fischer and Clayton 1983) and have mean fire intervals ranging from 2 to 25 years on dry sites to about 40 years on cooler sites. Fuel loadings can vary dramatically within these fire groups (~4-25 tons per acre, Fischer and Clayton 1983), which likely resulted in historic fire intensities that ranged from low intensity ground fires to intense, mixed-severity events (Losensky 1997). Forest conditions within the project area tend to be cool and dry, typically resulting in lower fuel loadings (i.e., <20 tons/acre). The presence of scattered old, open-grown Douglas-fir were likely the result of frequent fires burning at lower intensities on gentle slopes (Losensky 1997). The abundance of old trees with fire scars on southerly slopes indicate that much of the project area was likely influenced by relatively frequent fire events. Thus, the presence and absence of forest and grassland patches would have been dynamic, shifting through time. Periodically, sites where conifers presently occur would have appeared more as grassland than forest. Surviving individual trees and clumps of trees in cool areas and gentle ridge tops served as

seed sources that would have promoted the periodic regeneration of trees that may or may not have survived subsequent fire events. Historic fire events likely contributed to a naturally fragmented patchy distribution of forest stands at the landscape scale.

4. Insect and Disease

Currently the forested acres within the project area do not display any serious insect or disease problems. However, high stand densities, multi-storied stand structure, and climax host species are present and elevate the risk of insect and disease outbreak.

5. Successional Stages

Within climatic sections of Montana, Losensky (1997) estimated the age structure of each forest cover type that may have existed in 1900 by backdating inventory data. The project area falls under Losensky's (1997) climatic section 13 (Section M332E), which encompasses the southwest corner of Montana and the upper Salmon and Lemhi drainages of Idaho, and includes Beaverhead and Madison Counties.

In this climatic section, forested cover types were historically found on about 39% of the area, with the remainder being grassland and shrubland. At the turn of the century, 10% of the timber in the climatic section and 19% of the Beaverhead and Madison County timber was old forest >150 years old.

Current forest inventory data on State lands in the Beaverhead and Madison Counties can be used to compare the current age structure of each forest cover type to Losensky's evaluation of conditions that existed in 1900. We do not have a complete stand level inventory of all the forested State lands in Beaverhead or Madison County. An estimate of age structure is available on approximately 67% of the forested State lands. However, the data available is on the majority of lands that have potential for timber harvest activity and therefore would tend to represent stands that have had human disturbance during the last century and consequently younger age classes are likely represented. Table III -1 displays Losensky's estimate and the current inventory estimate

of age structure on the forested State land in the Beaverhead and Madison Counties. Comparison of the data in this table indicates the current age structure of the forested State lands is substantially older than would be expected from Losensky's data. Currently approximately 59% of the forested stands on State lands are greater than 100 years of age. Also, there is currently a greater than expected percentage (39%) of old stands on State land when compared to the historic estimate of 19% on all lands in 1900. High representation of old stands is consistent with the belief that modern fire suppression policies have limited the natural disturbance role played by fire in this region and that human caused disturbances have not approached historic levels of disturbance.

TABLE III – 1: Percentage of area by cover type and age class for Beaverhead and Madison Counties. Historic figures are from Losensky (1997) and represent an estimate of conditions that existed in the year 1900 in Beaverhead and Madison Counties. Current figures are extrapolated from the DNRC inventory, which consists of stand data collected from 67% of the estimated forest area on state land in Beaverhead and Madison Counties.

COVER TYPE (STAND AGE IN YEARS)		NON-STOCKED & SEEDLING/ SAPLING (0-40)	POLE (41-100)	MATURE (101-OS)	OLD STANDS (OS)¹
DOUGLAS-FIR	HISTORIC	33%	28%	13%	26%
	CURRENT	6%	26%	21%	47%
SPRUCE-FIR	HISTORIC	4%	41%	22%	33%
	CURRENT	2%	38%	23%	37%
LODGEPOLE	HISTORIC	50%	41%	8%	1%
	CURRENT	22%	39%	16%	23%
AVERAGE OF FOREST	HISTORIC	35%	34%	13%	19%
	CURRENT	10%	31%	20%	39%

¹ – Stands composed primarily of trees > 150 years of age.

6. Old Growth

The State Forest Land Management Plan (SFLMP) states that DNRC would seek to maintain or restore old growth forest in amounts of at least half the average proportions that would be expected to occur with natural processes on similar sites. In the SFLMP, DNRC conceptually defines old growth as: forest areas that are in the later stages of stand development. Old-growth forests are generally dominated by relatively large old trees, contain wide variation in tree sizes, exhibit some degree of multi-storied structure, have signs of decadence such as rot and spike-topped trees, and contain standing snags and large down logs.

DNRC has adopted old growth definitions described in "Old Growth Forest Types of the Northern Region" (Green, et al., 1992).

Passage of SB354 has brought into question the SFLMP commitment to retain old growth. Ongoing development of rules under the Montana Administrative Procedures Act will address retention of old growth on State trust lands.

Old growth stands >5 acres do not occur within the project area but occasional old relics and clumps of old Douglas-fir and lodgepole pine can be found. These trees typically occur on ridge tops or other protected areas where intense fires were uncommon. Fire frequencies and intensities on forested sites within the project area apparently did not allow the development of extensive old growth development during the last two centuries.

7. Noxious Weeds

Currently there has been no noxious weed infestations detected on the State tract.

8. Transportation/Roads

The Gravelly Range has a long history of mining, which has left a network of old 4x4 jeep trails and two track roads across the landscape. Most of these roads are open or have seasonal restrictions placed on them. Roads on the private ownerships are not maintained for public use, and in some cases are closed to travel by locked gates. Approximately 1.7 miles of existing road on

the State ownership is open with the remaining closed to the public.

Maintained system roads that are open to the public are under the jurisdiction of the BLM and Madison County. These roads would be identified as the Barton Gulch, Browns Gulch and Alder/Hungry Hollow roads. No system roads exist on the state ownership.

Based on a Watershed Analysis Area of 22,235 acres, the estimated current road density is 1.48 miles per square mile.

9. Recreation

Persons holding a valid State Recreational Use License may hunt and conduct other recreational activities on the State tract. Public access is provided by crossing the adjoining BLM ownership.

10. Grazing

Historically the State tract has been leased for grazing. The entire 640 acres is currently leased for 74 Animal Unit Months (AUM's). Annual income from the grazing license is \$408.48.

11. Mining

Past and present mining activities have occurred on a limited basis within the State tract. Currently two land use licenses provide for non-mechanized prospecting activities. Annual income from the licenses is \$3,840.00.

12. Cultural Resources

A field review was conducted in July of 1999 by the DNRC archaeologist to inventory cultural resources on the proposed project area. No cultural resources were found that would be impacted by the project and no additional archaeological investigative work was recommended.

13. Aesthetics

The remote location of the proposed project area is not visible to any populated areas.

14. Economics

Revenue producing activities associated with this tract are grazing, non-mechanized prospecting and recreational licenses, which currently produce an estimated annual gross revenue of \$4,277.76.

Annually the DNRC analyzes the total costs, including general administration, of the timber sale program by land office and statewide. The following table displays the revenue-to-cost ratios for the state and Central Land Office. The revenue-to-cost ratios are a measure of economic efficiency. A ratio value less than 1.0 means that the costs are higher than revenues (deficit). A ratio greater than 1.0 means revenues are higher than costs (profit). A ratio equaling 1.0 means that cost equal revenues.

TABLE III - 2: Revenue-to-Cost Ratios State-wide and for the Central Land Office.

	FY95	FY96	FY97	FY98	FY99
CLO	1.44	1.45	3.56	2.20	2.15
State	2.07	1.68	1.89	1.72	1.36

15. Landscape Analysis Areas

Three analysis areas were developed to assist in the process of evaluating the different resources and features in the vicinity of the proposed project area (see TABLE III - 4). A Watershed Analysis Area consisting of 22,235 acres was delineated for the analysis of potential watershed impacts. The Wildlife Analysis Area consisting of 5,760 acres, developed from the core block of sections surrounding the project area. The third area is the State section where the project is proposed. The following data summary tables shows the overall statistics associated with each analysis area.

TABLE III – 3: Watershed Analysis Area By Ownership.

	Acres	% of Ownership
Private	10,935	49%
BLM	9,320	42%
USFS	1,030	5%
State of Montana	890	4%

TABLE III – 4: Analysis Areas Summary.

	Total Area (Acres)	Non-forested Area	Pre-harvest Forested Area	Area Harvested '85-'01	Existing Forested Area
Watershed Area	22,235	10,623 (48%)	11,612 (52%)	1,458 (6.6%)	10,154 (46%)
Wildlife Area	5,760	1,184 (21%)	4,576 (79%)	619 (10.7%)	3,957 (69%)
Project Area Section 16	640	195 (30%)	445 (70%)	NONE	445 (70%)

2. Regulatory Framework:

This portion of the Missouri River basin, including the Ruby River drainage, is classified B-1 in the Montana Water Quality Standards. Waters classified B-1 are suitable for drinking, culinary and food processing purposes after conventional treatment; bathing, swimming and recreation; growth and propagation of salmonoid fishes and associated aquatic wildlife, waterfowl and furbearers; and agricultural and industrial water supply. State water quality regulations prohibit any increase in sediment above naturally occurring concentrations in waters classified B-1 (ARM 16.20.618 2(f)).

Naturally occurring means conditions or materials present from runoff or percolation over which man has no control or from developed land where all reasonable land, soil and water conservation practices have been applied. Reasonable land, soil and water conservation practices include methods, measures or practices that protect present and reasonably anticipated beneficial uses. The state of Montana has adopted Forestry Best Management Practices (BMP's) through its Non-point Source Management Plan as the principal means of meeting Water Quality Standards.

Existing beneficial uses within the analysis area of the proposed sale area contain water rights for groundwater sources including stock, wildlife and wetlands, domestic, mining, commercial and fire protection uses. Surface water sources include: stock, irrigation, fire protection, recreation, new sprinkler irrigation and mining uses. There are no sensitive beneficial uses in the sale area, however; downstream sensitive beneficial uses within the analysis area include aquatic life support, cold water fisheries and surface domestic uses.

Browns Gulch is a tributary to Alder Gulch. Adler Gulch (MT41C002-4) is listed as a water quality limited water body (as per the year 2000 303(d) list). Probable cause of impairment is copper, lead, mercury, metals, fish habitat degradation, riparian degradation, and other habitat alterations. Probable sources are listed as being resource extraction (placer mining, abandoned mining, acid mine drainage) and contaminated sediments. The 303(d) list is compiled by the Montana Department of Environmental Quality (DEQ) as required by Section 303(d) of the Federal Clean Water Act and the Environmental Protection Agency (EPA) Water Quality Planning and Management Regulations (40 CFR, Part 130). Under these laws, DEQ is required to identify water bodies that do not fully meet water quality standards, or where beneficial uses are threatened or impaired. These water bodies are then characterized as "water quality limited" and

thus targeted for Total Maximum Daily Load (TMDL) development. The TMDL process is used to determine the total allowable amount of pollutants in a water body or watershed. Each contributing source is allocated a portion of the allowable limit. These allocations are designed to achieve water quality standards.

The Montana Water Quality Act (MCA 75-5-701-705) also directs the DEQ to assess the quality of state waters, ensure that sufficient and credible data exists to support a 303(d) listing and to develop TMDL's for those waters identified as threatened or impaired. Under the Montana TMDL Law, new or expanded nonpoint source activities affecting a listed water body may commence and continue provided they are conducted in accordance with all reasonable land, soil and water conservation practices. Total Maximum Daily Loads have not been completed for any of the drainages in the project area. DNRC will comply with the Law and interim guidance developed by DEQ through implementation of all reasonable soil and water conservation practices, including Best Management Practices and Resource Management Standards as directed under the State Forest Land Management Plan.

A recent federal court decision has directed Montana DEQ to develop TMDL's for all streams on the 1996 303 (d) list. Alder Creek is also on the 1996 303 (d) list, however the probable causes and sources are different than those listed for the 2000 list.

The causes of impairment in Alder Creek, according to the 1993 303 (d) list, are other habitat alterations and siltation with the probable sources being agriculture, channelization, dredge mining, flow regulation/modification, natural sources, and resource extraction. According to this report, Alder Gulch is partially supporting its aquatic life support and cold water fishery beneficial uses, while drinking water supply and recreation are threatened. Alder Gulch is currently listed as a low priority for TMDL development.

The Montana Streamside Management Zone Law (MCA 77-5-301) and Rules regulate timber harvest activities that occur adjacent to streams, lakes and other bodies of water. This law prohibits or restricts timber harvest and associated activities within a predetermined (SMZ) buffer on either side of the stream. The width of this buffer varies from 50-100 feet, depending on the steepness of the slope and the class of the stream.

The Montana Stream Protection Act (MCA 87-5-501) regulates activities conducted by government agencies that may affect the bed or banks of any stream in Montana. This law provides a mechanism to require

implementation of BMP's in association with stream bank and channel modifications carried out by governmental entities. Agencies are required to notify the Montana Department of Fish, Wildlife and Parks (MDFWP) of any construction projects that may modify the natural existing conditions of any stream.

3. Water Quality:

The proposed access route (Barton Gulch) contains approximately 8.5 miles of BLM system road. The first five miles of road have been upgraded in conjunction with recent timber sales but the remaining three miles do not meet current BMP standards. Poor road system design and location have resulted in Barton Gulch being impacted by accelerated rates of sedimentation.

The existing roads will continue to be a potential source of impacts to downstream water quality and beneficial uses unless remedial action and mitigation measures are undertaken.

4. Cumulative Watershed Effects:

Past and ongoing management activities in the four watersheds presented earlier in this document include mining, timber harvest, grazing, fire suppression and road construction. Timber harvest activities have been minimal over the past 15 years, constituting approximately 1,458 acres.

A cumulative watershed effects (CWE) analysis for the proposed sale area was completed by DNRC to determine the existing conditions of the affected watershed and the potential for cumulative effects due to increased water and sediment yields. All four watersheds were chosen as individual analysis boundaries. This analysis area was selected because it was determined to be the most appropriate scale to detect potential effects. A summary of recent research suggests detection of hydrologic cumulative effects should focus on third-to fourth-order basins (NCASI, 1999).

The CWE analysis was completed using a Level II coarse filter screening (outlined in SFLMP Watershed RMS # 7). The coarse filter approach consisted of on-site evaluation, mapping the percent forested of the watershed and documenting history of past timber management activities through the use of maps, aerial photographs and harvest records. Field reconnaissance and assessments were used to collect additional data

and to verify information obtained through aerial photo and map interpretation.

Existing cumulative watershed effects due to increases in water yield are very unlikely in any of the watersheds due to the following reasons:

- Only a moderate amount of the watershed area has been harvested in the past 15 years.
- The existing partially forested natural condition of each watershed. Open, range-like watersheds evolved under conditions with less forest crown and thus less evapotranspiration.
- Presently, there is likely more total forest cover in the watershed following forest encroachment on rangeland and fire suppression.
- Field evaluations found no evidence of channel instability or alterations resulting from increases in peak flows.

A detailed water yield analysis was not completed for the affected watersheds due to the low potential for and lack of evidence of increased water yield due to timber harvest activities.

Existing harvest levels are well below those normally associated with detrimental water yield increases. It is generally accepted that up to 20-30% of the watershed area can be harvested before detectable increases in peak flows occur (USFS, 1974). Table III - 5 summarizes the existing conditions of each watershed analyzed.

TABLE III - 5: Watershed Existing Condition Analysis.

BROWNS GULCH PROPOSED TIMBER SALE Watershed Existing Conditions Analysis					
Watershed	Drainage Pattern	Total Acres	Existing Road Miles	Percent Forested	Percent Harvested
Barton Gulch	Perennial	8,750	11.3	63%	7.9%
Browns Gulch	Perennial	4,938	22.0	29%	10.0%
Davey Creek	Perennial	3,578	5.0	36%	0.4%
Williams Creek	Perennial	4,969	13.0	41%	5.1%

A DNRC Hydrologist evaluated all roads within the proposed sale area. Field evaluation indicates that past timber harvest activities within the proposed sale watershed analysis area have resulted in impacts to water quality. These impacts are limited to sediment delivery and surface erosion and are restricted to stream crossings and isolated segments of existing road.

5. Cold Water Fisheries:

An automated search for Browns Gulch, Davey Creek and Williams Creek was completed using the Montana Rivers Information System (MRIS) database. No survey data for these streams was found. Fisheries surveys completed by the Montana Department of Fish Wildlife and Parks (MDFWP) and the Bureau of Land Management (BLM) for Barton Gulch found brook trout and mottled sculpin (Kampwerth, 1995). No westslope cutthroat trout were found along any of the reaches surveyed of the watersheds draining the project area.

6. Geology and Terrain:

The sale area is located on gentle and some moderate slopes with shallow to deep soils weathering from metamorphic igneous gneiss, which is more stable than granitics. There are no especially unusual or unique geologic features in the proposed harvest area. There are several small faults and bedrock mineralization zones where the rock is altered. Slopes are generally stable due to the extensive area of shallow bedrock and only small, localized sites of marginal slope stability were observed within the project area. Bedrock exposed on ridges is generally rippable and material quality is good for road construction.

7. Soils:

Soil map units were taken from the Madison County Soil Survey and modified based on field review. The sale area is located on moderate to steep slopes with high rock fragment residual soils on the mountain ridges. Moderate to deep, stony and flaggy (flagstone) sandy loams soils weathering from metamorphic gneiss bedrock occur on the mountain sideslopes. Cold climate and dry summers limit moisture and affect tree growth.

Primary soils on forested sites within the proposed harvest area are Shadow complex soils with a described slope range of 25-70% supporting lodgepole pine, subalpine fir and spruce. Shadow very channery sandy loams on forested sites typically have an inch of duff over very channery

sandy loam topsoil with coarse textured subsoils of extremely channery and stony loams of shallow to moderate depth. Rock outcrops occur on ridges and convex slopes and can limit equipment operations. Slopes up to 45%, are suitable to tractor yarding harvest methods. These soils are droughty and subject to erosion where disturbed. Erosion can be controlled by installing adequate drainage and grass seeding of trails where needed. Leaving slash can provide shade to enhance survival of seedlings.

Steeper, south slopes are Rochester stony loam-Rock outcrop complex on 45-70% slopes supporting Douglas-fir, limber pine, juniper and bunchgrass. These steeper slopes have high ratings for potential erosion and displacement. These risks can be mitigated by use of cable yarding harvest methods. These soils have a long season of use and material quality is good for road construction but can be slow to revegetate unless seeded promptly.

Soils dry out rapidly after snowmelt in most proposed harvest units and allow adequate season of use from about July through fall. Harvest operations and road use should be limited to dry, frozen or snow covered conditions. Erosion can be controlled with standard drainage in skid trails where needed.

There are extensive old trails and 4 wheel drive roads on the State tract associated with past mining activities. Flatter road grades are fairly well-drained and show minimal erosion due to the gravelly, high coarse fragment content soils. Some segments of road are on suitable grades and can be reconstructed, but most of the old roads are narrow, too steep and eroding.

D. *Big Game Winter Range, Elk Security and Vulnerability*

1. Big Game Winter Range:

This State of Montana section maintains cover usable by elk in winter. Densely stocked thickets of conifer regeneration and overstocked mature stands provide good thermal protection for elk, which can reduce energy expenditures and stress associated with cold temperatures. Areas in the section with densely stocked mature trees are also important for snow interception, which makes travel and foraging less stressful for elk during periods when snow is deep. Dense stands are currently somewhat connected and provide for animal movements across the section during adverse weather conditions. Patches of isolated forest can offer hiding cover and sheltered bedding sites for elk that utilize nearby grasslands for

foraging. This parcel receives some winter use by bulls but greatest use likely occurs during mild winters.

A winter range map (1996 DFWP data) was examined for the northerly portion of the Gravelly Range. This map indicates the project area is situated between two identified wintering areas occurring 3-4 miles distant to the east and west.

Section 16 is considered usable as winter range for elk, especially during mild winters, but is not necessarily "key" winter range (i.e., wintering areas that provide for relatively large groups of animals year after year, or are believed to provide critical cover during extreme weather events). DNRC is not aware of any winter range that would be considered "key" that lies adjacent or within 3-4 miles of the project area.

2. Elk Security and Vulnerability in the Gravelly Range:

The Gravelly Range is an isolated range that occurs in southwest Montana. The northern-most point of the Gravelly Range lies about 3-4 miles south of Virginia City, Montana. This area is part of the DFWP Gravelly Elk Management Unit (EMU) and includes Hunting District 330, which occupies ~ 320 square miles of the EMU (DFWP 1992). Habitats found within Hunting District 330 range from grassland-sagebrush along foothills at lower elevations (~6,000 feet) to those at the highest elevations (up to ~9,500 feet) characterized by rocks, scree, whitebark pine and subalpine fir. Mature Douglas-fir and lodgepole pine forests dominate vegetation communities found at mid-elevations.

Bull elk vulnerability and potential reductions in hunter opportunity are a primary concern expressed by DFWP in this hunting district and the Gravelly EMU. Achieving this goal can be hampered when available cover at the landscape level is reduced appreciably through timber harvest activities, road management, or natural disturbances, such as large scale stand-replacement wildfires. Three-year first-week bull harvest averages for Hunting District 330 calculated for 1995, 1999 and 2000 have been at ~46%; above the upper limit (45%) for DFWP bull carryover objective (B. Brannon, DFWP, pers. correspondence 1/08/02). Three-year first-week bull harvest averages for the Gravellys EMU calculated for 1995, 1999 and 2000 are 54%, 52% and 51% respectively; also above the upper limit (45%) for DFWP bull carryover objective. Data are not available for 1996, 1997, or 1998. High bull harvest during the first week of the hunting season results in lower numbers of bulls "available" to hunters for harvest for the remainder of the general 6-week hunting

season.

While existing cover is present that is important for minimizing stress and disturbance to elk during the general season, the presence of the nearby potentially active mines on sec. 9, 10 and 15, open roads in sec. 15, and the Dryden 4WD trail in DNRC Sec. 16, likely reduce the effectiveness of existing cover patches in the vicinity to provide elk security. Human activity levels associated with mines would be expected to potentially influence elk use of this area.

The majority of cover within the state tract occurs at elevations >7,800 feet. Potential cover would likely be unavailable for elk during periods when snow conditions are deep. However, cover at higher elevations probably would be available for use by bulls during the first week of the general big game season during most years. Security cover at lower elevations is likely very important for minimizing bull elk vulnerability under the broad range of weather conditions that can occur in the Gravelly Range during the fall.

Existing forested acres within the wildlife analysis area were estimated at ~3,957. Approximately 619 acres of additional forest were harvested between 1985 and 2001. These 619 acres are presently non-forested, sparsely forested or young conifer regeneration. None of the acres harvested between 1985 and 2001 are considered to provide secure elk cover at present.

Existing Condition and Value of the Project Area for Elk Security:

Approximately 240 acres of dense forest habitat currently occurs in the project area, which provides high quality hiding cover and escape cover. Moderate to high quality hiding cover is also present within about 205 acres of open-grown, mature forest that occurs on the parcel. About 2,322 acres of dense mature forest occurs within the 5,760-acre wildlife analysis area, where average patch size is about 71 acres (range ~14 to 187 acres).

Historic fire events likely contributed to a naturally fragmented patchy distribution of forest stands at the landscape scale. Past logging and mining activity within the project area and wildlife analysis area have contributed to the existing patchy distribution of dense, mature forest habitat. Existing forest cover exhibits a moderate level of habitat connectivity across multiple networks of moderate to densely forested stringers and habitat patches. No known wildlife corridors of notable importance occur within the project or analysis area.

The following terminology is used to describe elk habitat values in the context of the project area and is consistent with Lyon and Christensen (1992).

Security - The protection inherent in any situation that allows elk to remain in a defined area despite an increase in stress or disturbance associated with the hunting season or other human activities.

Hiding Cover (functional def.) – Hiding cover allows elk to use areas for bedding, foraging, thermal relief, wallowing, and other functions year-round. Hiding cover may contribute to security at any time, but it does not necessarily provide security during the hunting season.

Elk Vulnerability – A measure of elk susceptibility to being killed during the hunting season.

Criteria for security cover developed for forests in western Montana by Hillis et al. (1991) requires a minimum of 250 acres of mature timber (contiguous and non-linear) that is $\geq 1/2$ mile from an open road during hunting season. Due to the existing number of open roads and motorized trails in the wildlife analysis area and project area, dense forest patches of size that would meet the Hillis et al. (1991) definition of security cover do not occur in the project area and are limited in number in the wildlife analysis area. However, the forested patches in the project area have value for hiding cover, which can serve to lower bull elk vulnerability. Retaining the greatest amounts of dense forest cover possible would pose the least risk of increasing elk vulnerability from present levels. The greater numbers of elk that use a particular area, the more important cover patches are as they serve to reduce vulnerability of a greater portion of animals. The specific annual home range and the seasons and amount of time elk typically use the project area are not known.

E. Threatened, Endangered, and Sensitive Species

1. Fine Filter Wildlife Issues

A fine filter analysis was conducted on the project proposal area for the following species

Threatened and Endangered Species: bald eagle, gray wolf, lynx and grizzly bear.

DNRC Sensitive Species: flammulated owl, boreal owl, black-backed woodpecker, pileated woodpecker, northern bog lemming, harlequin duck, ferruginous hawk, mountain plover, peregrine falcon and Townsend's big-eared bat.

Flammulated owls, Ferruginous hawks and Black-Backed woodpeckers have been documented within the latilong (L38) that encompasses the project area but it is unknown if they inhabit the project area.

There is no documented use within the proposed project area for any of the remaining species. However there is potential for future, occasional, or incidental use by gray wolf, grizzly bear, Townsend's big-eared bat and lynx. A summary of the analysis can be found in Chapter IV "Checklist For Endangered, Threatened and Sensitive Species Central Land Office"

2. Plant Species of Special Concern:

A search of the MNHP database was conducted using the 7.5 Minute Quadrangle Distribution Search. Two species of special concern have been recorded within the Cirque Lake quadrangle area, which includes the project area, with one occurrence each. The two species recorded were Idaho Sedge (*Carex idahoensis*) and Cut-Leaf Balsam-Root (*Balsamorhiza macrophylla*).

No plant species of special concern have been observed during general surveys within the State tract.

CHAPTER IV – ENVIRONMENTAL EFFECTS

A. INTRODUCTION

This chapter will describe the probable effects of the various aspects of the affected environment as presented in Chapter III.

B. BACKGROUND

1. Forest Vegetation

The No Action alternative would leave all vegetation undisturbed.

The Action alternative of harvesting 60 acres would alter 13.5% of the forested acres on the State tract. The new road construction associated with the action alternative would adjust this figure to 14.5%. Based on the total area of the section, the proposed alternative would alter the vegetation on an estimated 10% of the area. The few old scattered trees and clumps along the ridge tops would be retained. The areas affected would be harvested in a manner to regenerate a younger, healthy stand within 10-20 years.

2. Cumulative Impacts

There has not been any harvest activities within the State of Montana ownership that would change or convert cover types to another classification.

To evaluate the cumulative impact of the proposed timber harvest on the State of Montana ownership, Losensky's data summaries for the Beaverhead and Madison Counties was compared with the inventory of state forested lands and anticipated changes under the Action alternative. The 60 acre Action alternative would move approximately 1% of the 101-150 age class cover types to the non-stocked\seedling age class. The data comparison also indicates that for either alternative, the forested stands for all cover types on the state land post-harvest would remain older than anticipated.

About 1,458 acres of additional forest were harvested between 1985 and 2001. Following the proposed harvest, the remaining acres of forest would be reduced to ~10,094 acres (45%) and total

acres harvested would be increased to ~1,518 acres (6.8%) in the analysis area.

3. Fire History / Ecology

The No Action alternative would result in no appreciable change in the forest cover types or stand structures in the near term. Current successional patterns would continue. The stands would continue to be dominated by Douglas-fir and lodgepole pine, with a gradual trend to increase the number of more shade tolerant species, such as subalpine fir and spruce, in the understory. Tree mortality from potential insect and disease infestations would contribute to site factors that would be conducive to stand replacement fires. Such an event would likely revert the forest stands back to a grassland-sage cover type with a few scattered old remnant trees that would have survived due to micro-site conditions or location.

The Action alternative would not change the classification of forest types within the State of Montana section. Harvest treatments for units C1 and C2 would be selection harvests focusing on leaving approximately 25 to 30% of the stand as individual seed trees or small clumps of trees. Unit T1 would be an eight-acre clearcut harvest and unit T2 would have small clearcuts interspersed with residual clumps of submerchantable trees and individual seed trees. These treatments scattered across a landscape would emulate natural small-scale disturbance events. Harvest treatments would reduce the likelihood of stand replacement events from occurring by reducing stand susceptibility to insect and disease infestations and reducing fuel loads of the treated stands. Minor cumulative effects of shifts in age class distribution would be expected at the watershed level. The shifts would be towards age classes more typical of historic conditions.

4. Insect and Disease

Under the No Action alternative all stands would be susceptible to Western Spruce budworm, Douglas-fir beetle or dwarf mistletoe infestations due to overstocked and/or multi-story conditions.

The Action alternative would reduce the potential of infestation in the harvested units with post treatment stands being less susceptible since primarily healthy, open stands would remain.

Open stands where tree growth and vigor is encouraged and a variety of age classes are developed are more resistant to spruce budworm infestations (Carlson et al. 1983).

5. Successional Stages

The No Action alternative would result in continued succession toward a climax vegetation condition unless fire or other disturbance intervened to move succession back to the non-stocked and seedling/sapling stage.

The Action alternative would essentially convert 60 acres of Douglas-fir and Subalpine fir/lodgepole, distributed over 4 units, to a non-stocked/seedling stage.

6. Old Growth

Since no old growth stands occur within the proposed project area, there would be no effects on old growth. Relics, snags and coarse woody debris, which are important attributes associated with old growth and future development of old growth, would be retained where they don't present safety hazards.

7. Noxious Weeds

Under the No Action alternative, noxious weeds may become established on 4 wheel drive roads and onto dry vegetation sites by vehicle or animal use, depending on the weed control efforts of the grazing lessee.

The Action alternative would involve ground-disturbing activities that have the potential to introduce or spread noxious weeds in susceptible habitat types. An Integrated Weed Management (IWM) approach, combined with prevention and revegetation, is considered the most effective weed management treatment. To reduce the possible introduction and spread of weeds associated with this project, mitigation measures to address the management of weeds are included in Chapter II – C.1. "Mitigation Measures For Action Alternative".

8. Transportation/Roads

Under the No Action alternative, road densities for the analysis areas would remain at 1.48 miles per square mile.

The implementation of the Action alternative would increase the road density to 1.54 miles per square mile (based on watershed analysis area).

9. Recreation

Since non-motorized recreational activities are allowed on the State of Montana tract and public access is provided either by crossing the adjoining BLM or private ownership, the proposed Action alternative would not affect the recreational status of the section.

10. Grazing

The Action alternative would not affect the grazing lease that is currently established on the State tract.

11. Mining

The Action alternative would not affect the prospecting leases that are currently established on the State tract.

12. Cultural Resources

Since no cultural resource sites will be impacted and no additional investigative work is recommended there would be no effects expected from the initiation of the Action alternative as proposed.

13. Aesthetics

Since the remote location of the proposed project is not visible to any populated area, the initiation of the Action alternative would not affect the visual quality.

14. Economics

Economic Assumptions:

- a) Costs and revenues are estimates intended for relative comparison of alternatives. They are not intended to be used as absolute estimates of return.
- b) The estimated stumpage value equals the delivered log prices minus costs and an amount for profit and risk. Costs include logging costs, haul costs, forest improvement (FI) fees, development costs, and other costs (e.g., road maintenance). Profit and risk is the return to timber buyer that accounts for actual time and effort, some profit for entrepreneurial spirit, and something to cover the expected losses on an occasional sale that is not profitable.

TABLE IV - 1: Estimated Stumpage \$/MBF for Action Alternative

	Action Alternative
Delivered Log Prices	\$ 460.00
*Logging Cost \$/MBF	\$ 184.88
Haul Cost \$/MBF	\$ 83.75
Development Cost \$/MBF	\$ 64.31
FI Fee \$/MBF	\$ 12.80
Profit & Risk (5% of Delivered Log Prices)	\$ 21.50
**Estimated Stumpage \$/MBF	\$ 92.76
<p>*Cost based on weighted average of tractor and cable harvest volumes and mobilization costs.</p> <p>** These estimates of stumpage values assume that the new road construction on the BLM ground would be obliterated. If this is not required, the estimated stumpage would equal \$93.97 \$/MBF.</p>	

- c) The estimated gross revenue to the trust is calculated by multiplying the estimated stumpage price by the estimated volume. The state also collects money for Forest Improvement (FI). The estimated total collected FI equals the FI fee rate multiplied by the estimated volume. The following table displays the estimated revenue to the state from this proposed sale.

TABLE IV – 2 Estimated Gross Revenue to the Trust and Total Collected Forest Improvement (FI) Fee for Action Alternative

	Action Alternative
Est. Total Volume (MBF)	530
*Est. Gross Revenue to the Trust	\$ 49,163
Est. Total Collected FI fee	\$ 6,784
*These estimates of gross revenue to the trust assume that the new road construction on the BLM ground would be obliterated. If this were not required, the gross revenue to the trust would equal \$49,804.	

Table IV – 3: Analysis Areas Data Summary of Affects

	Total Area (Acres)	Total Forested Area	% of Total Area Affected	% of Total Forested Area Affected
			Action Alternative	Action Alternative
Watershed Area	22,235	10,154	0.3%	0.6%
Wildlife Area	5,760	3,957	1.0%	1.5%
Project Area Section 16	640	445	9.4%	13.5%

C. **Water Quality, Water Yield and Soils**

1. Effects to Water Quality:

Harvest units can directly impact water quality if not properly located or buffered. The risk of impacts is greatest along streams, wetlands and lakes. The Streamside Management Zone (SMZ) Law regulates forest management activities that occur adjacent to streams, lakes or other bodies of water.

Under the No Action Alternative, existing substandard roads with inadequate surface drainage and buffer zones may continue to impact water quality and downstream beneficial uses unless mitigation and remedial actions are undertaken.

Under the Action Alternative, proposed harvest activities are expected to have minimal impacts to the SMZ, provided all requirements of the law are met.

Portions of the sale area are drained by ephemeral draws, swales and wet areas that lack discernable stream channels. Equipment restrictions and designated crossings would minimize impacts and help protect all wet areas and ephemeral draws.

All new roads constructed on BLM ownership would be recontoured and seeded. Extent and timing of this obliteration would be based on the conditions of the access permit. Table IV – 4 summarizes the proposed activities of the Action alternative.

TABLE IV – 4

BROWNS GULCH PROPOSED TIMBER SALE				
Proposed Activities				
Alternative	Proposed Harvest Acres	Total Road Reconstruction	Total New Road Construction	Temp. Road Construction*
Action	60	0.8	2.1	0.2
*All temporary roads will be recontoured and seeded at the end of the sale.				

The proposed new road construction is considered to have minimal risk to water quality and beneficial uses, provided site-specific design and mitigation measures are met. Otherwise, the risk of adverse impacts and inoperable conditions may occur. Proper application of BMP's and site-specific design and mitigation measures would reduce erosion and potential water quality impacts to an acceptable level as defined by the

water quality standards. Acceptable levels are defined under the Montana Water Quality Standards as those conditions occurring where all reasonable land, soil and water conservation practices have been applied.

Some short-term impacts to water quality may occur due to sediment induced at stream crossing ephemeral draw bottoms during or shortly after new road construction activities. Risk of impacts occurring during new stream crossing installations would be minimized provided site specific design recommendations from DNRC Hydrologist, Soil Scientist and MDFWP Fisheries Biologist are met. All stream crossing sites are subject to approval from MDFWP through the 124 permitting process required under the Montana Stream Protection Act.

Approximately 4 miles of existing low standard road under BLM jurisdiction provide partial access to the proposed project area. The recommended improvements to these road segments from DNRC Hydrologist and Soil Scientist are expected to minimize impacts during the proposed activities as well as reduce long-term sediment erosion and delivery.

2. Cumulative Watershed Effects:

The No Action alternative would not contribute to cumulative watershed effects.

For the Action Alternative, results from the cumulative effects analysis show that projected harvest levels are below those levels normally associated with detrimental water yield increases and channel impacts. The proposed harvest comprises 0.3% of the total watershed analysis area, increasing the total cumulative harvested area to approximately 6.9%. It is unlikely that this level of harvest would contribute to detectable increases in water yield or have any measurable influence on downstream channel conditions (USFS, 1974).

The proposed activities have the potential to increase sediment input into the affected stream channels during the short-term. However, recommended mitigation measures aimed at recontouring and seeding new temporary roads, stabilizing existing roads, implementation of the Watershed Resource Management Standards (RMS) outlined in the State Forest Land Management Plan (SFLMP) and application of the SMZ Law and Rules would minimize long-term sediment yield impacts. The results of the analysis are summarized below in Table IV – 5.

TABLE IV – 5:

BROWNS GULCH PROPOSED TIMBER SALE Cumulative Effects Analysis (Watershed Analysis Area)				
Alternative	Cumulative Harvest (acres)	Cumulative Harvest	Cumulative Road Miles	Cumulative Road Miles (Following Recontouring)
Action	1,518	6.9%	53.4	53.2

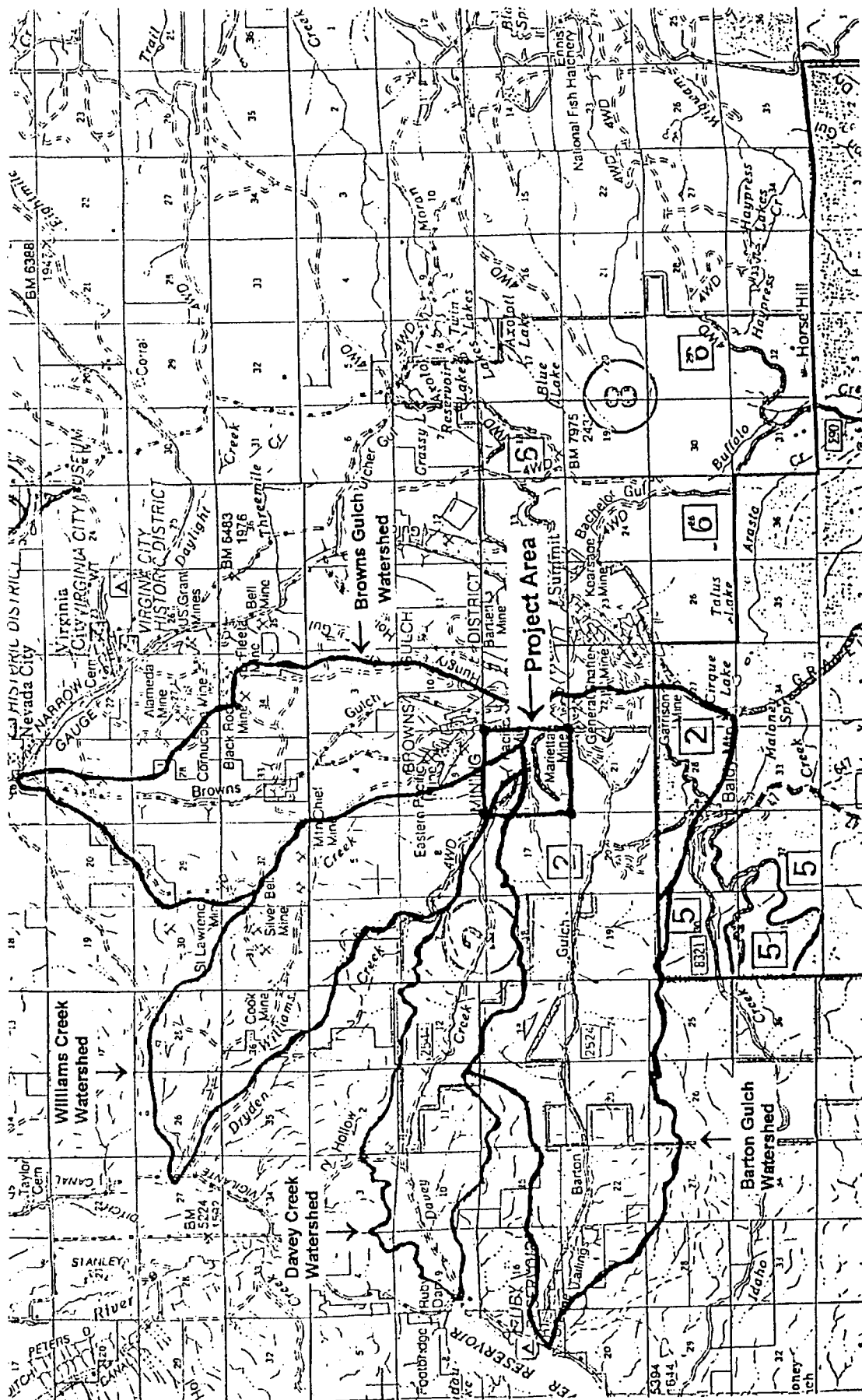
There is little risk of cumulative watershed impacts occurring from this sale proposal due to the following reasons:

- The moderate level of existing development activity in the watershed area.
- The majority of the existing harvests are selective or partial crown removal or have good regeneration established.
- The low level of additional crown removal and potential water yield increase that would be generated by the proposed actions.
- Existing cumulative watershed impacts appear to be limited to sedimentation resulting from poor road location and design, high run-off or flood events and cattle grazing.
- The proposed improvements to the existing road system on state land will benefit long term water quality and watershed conditions.
- The stands prescribed for treatment are overstocked stands due to fire suppression and forest encroachment in rangeland.
- All new road construction would be closed through recontouring and seeding or slashed and seeded, depending on ownership.

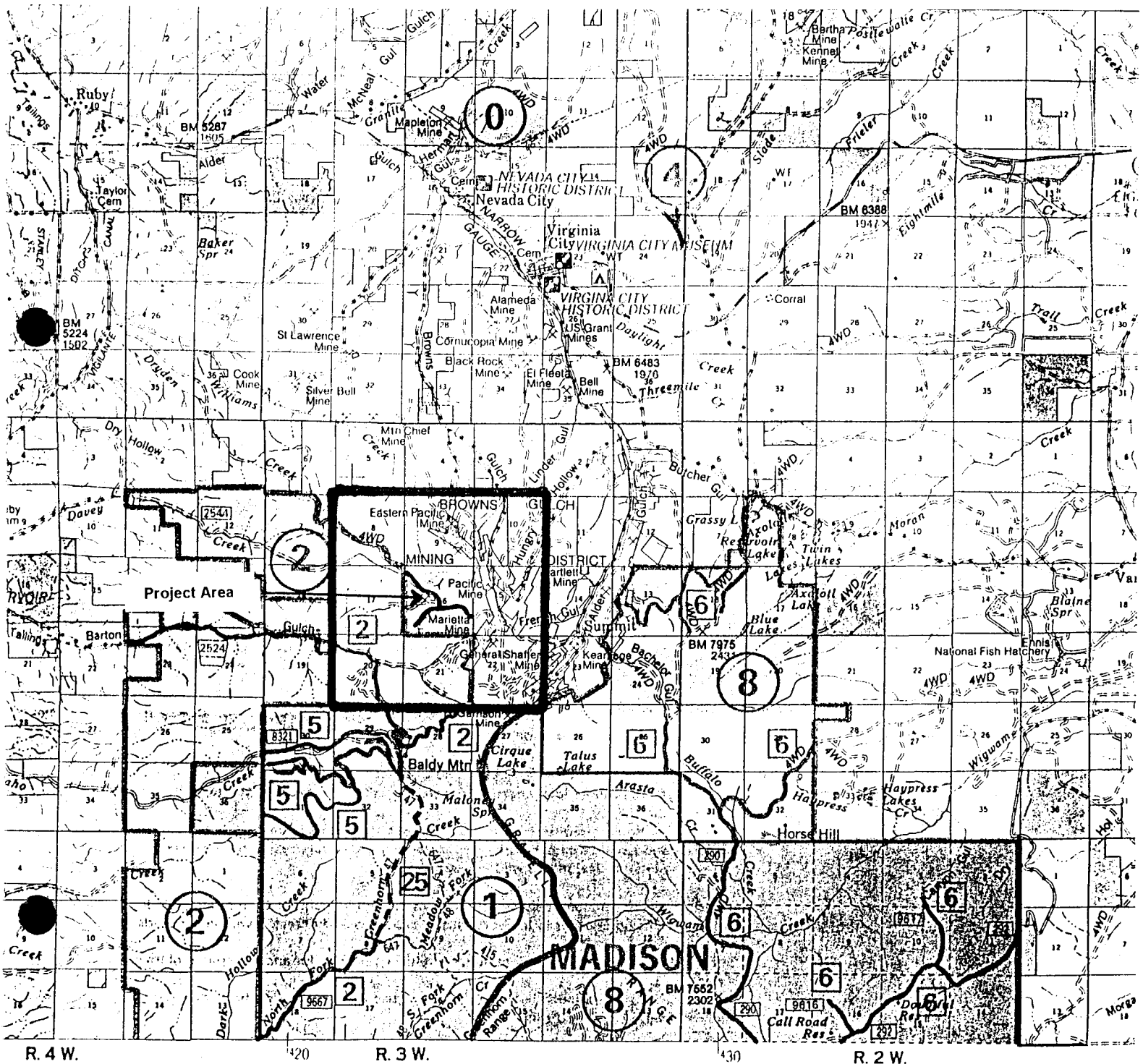
3. Effects on Cold Water Fisheries:

The No Action alternative would continue to impact cold water fisheries habitat through increased bank instability, erosion and sedimentation due to the current grazing plan and substandard road systems.

Section 16, T7S-R3W



**BROWNS GULCH PROPOSED TIMBER SALE
WILDLIFE ANALYSIS AREA MAP
Section 16-T7S-R3W**



C. Water Quality, Water Yield, and Soils

1. Watersheds:

The proposed sale area lies within one state section surrounded by BLM and private land. Precipitation ranges from 18-30 inches annually. The State tract is drained by four watersheds: Barton Gulch (8,750 ac), Williams Creek (4,969 ac), Davey Creek (3,578 ac) and Browns Gulch (4,938 ac). All are third order tributaries, Class I perennial streams under the Montana Streamside Management Zone (SMZ) Law and Rules and contribute to the Ruby River Basin.

A DNRC Hydrologist evaluated all stream channels and ephemeral draw bottoms draining the proposed sale area. The watershed analysis area has been further divided into two unnamed tributaries of Barton Gulch and one unnamed tributary of Williams Creek to facilitate hydrologic analysis and cumulative watershed effects assessment (see Map III-3). Each unnamed tributary contributing surface flow is described below.

Tributary # 1: This is a Class I perennial stream. The headwaters of this tributary consist of seepy wet areas with several springs surfacing and ultimately contributing flow to a single channel. The remaining upper reaches of this drainage feature contain ephemeral flow.

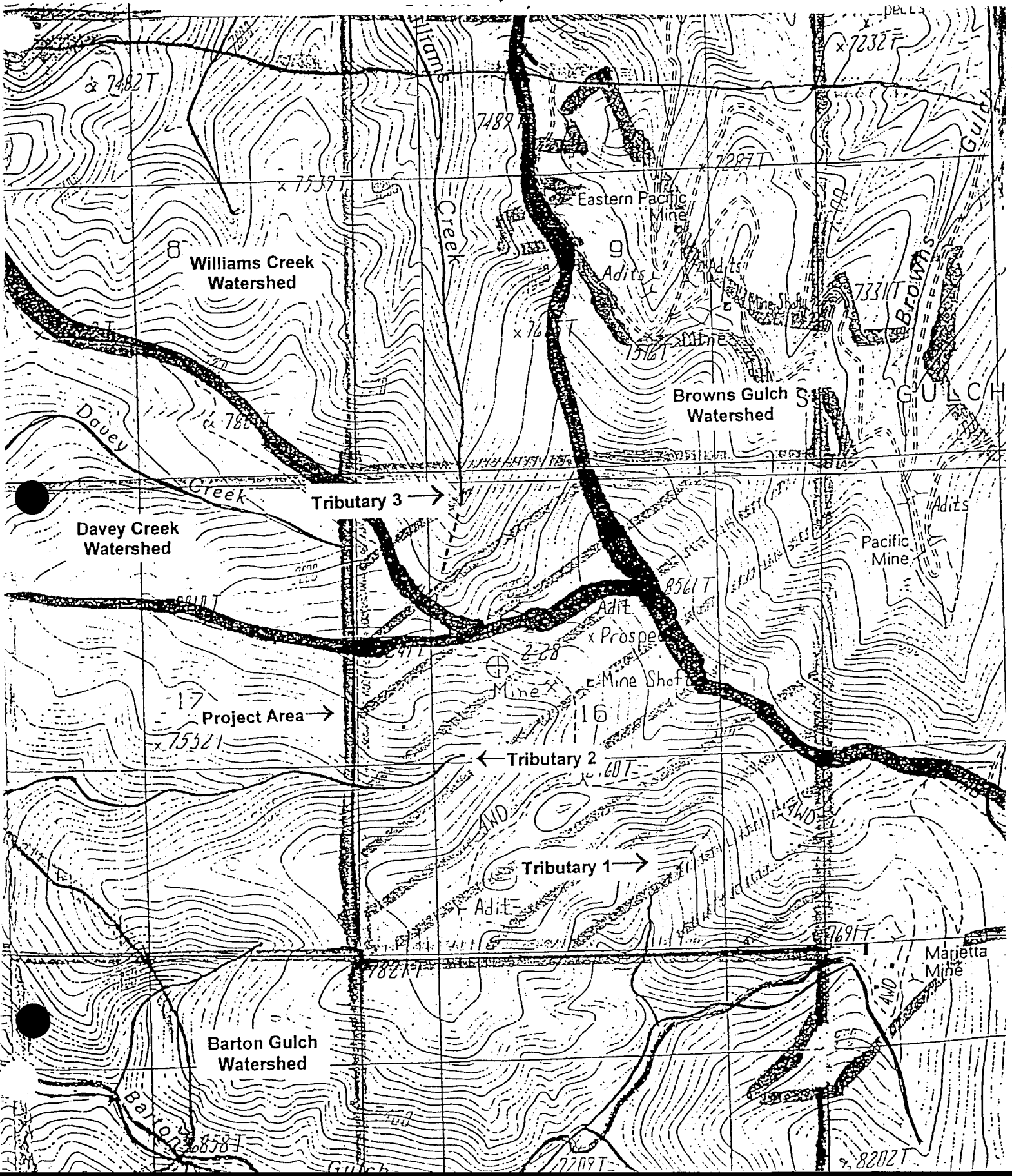
Tributary # 2: This is a Class I perennial stream with several springs and seeps surfacing along the adjacent draw features. The remaining upper reaches of this drainage feature contain ephemeral flow.

Tributary # 3: This stream has segments of perennial and intermittent surface flow with the channel eventually becoming clearly defined, where it becomes a Class II stream. The remaining upper reaches of this drainage feature contain ephemeral flow.

BROWNS GULCH PROPOSED TIMBER SALE

PROJECT AREA MAP

Section 16, T7S-R3W



The proposed activities have the potential to increase sediment input into the affected stream channels during the short-term. However, recommended mitigation measures aimed at recontouring and seeding new temporary roads, stabilizing existing roads, and riparian tree retention will minimize long-term impacts to water quality and fish habitat.

It is unlikely that the proposed actions will impact shade, temperature or large woody debris recruitment of fisheries streams. No harvest activities are proposed adjacent to any known fish bearing streams. No SMZ harvest is proposed for this sale.

Best management practices, Fisheries and Watershed Resource Management Standards outlined in the SFLMP and site specific design recommendations of DNRC hydrologist and soil scientist would help minimize the potential impacts of the proposed action on the cold water fisheries in the affected streams.

Operations conducted near draw features or stream channels and on steeper slopes have a higher risk of impacting water quality. Chapter II – C.1. "Mitigation Measures For Action Alternative" includes measures that would help minimize risk of impacts during the proposed activities. These mitigation measures are standard practices that may be applied to all harvest activities associated with the proposed Browns Gulch Timber Sale.

4. Effects on Soils

The No Action alternative would have some continued effects on soil resources. Segments of the existing Browns Gulch road have sources of sedimentation associated with inadequate road drainage and past high flow events. Existing roads will continue to erode without maintenance. Sedimentation is a soil-related effect, which is discussed in the hydrology section.

For the Action alternative, the primary soil concerns are potential displacement and erosion associated with road construction and harvest operations. Potential site impacts are difficulty with regeneration, reduced site productivity and increased runoff and erosion. Susceptibility to impact varies with soils type, harvest method, type of equipment and season of use.

An extensive field review was conducted across the project area. Most sensitive soils are wet sites and steep slopes which will be avoided or

protected through implementation of BMP'S and mitigation measures of Soil Scientist and Hydrologist to maintain productivity and protect soil and water resources.

For the Action alternative, existing and new roads will have adequate road drainage installed and new roads will be stabilized by grass seeding. Road obliteration or physical closures will be utilized to prevent use by vehicles on temporary roads on the State tract. The type and location of road closures on access roads across adjacent ownerships will depend on R/W permit requirements.

Cable harvesting will have negligible effects on soils. Tractor skidding would be limited to acceptable slopes of less than 45% and skid trail planning will further limit the area of disturbance and damage to the residual stand and soils.

Cumulative effects to soil productivity:

Cumulative effects could occur from repeated entries into the harvest area. There are some old harvest and skid trails in the proposed tractor harvest units associated with past mining with little cumulative effects on soils. A proportion of large woody debris will be retained to sustain nutrient cycling and long term productivity.

Planned skidding and slash disposal mitigation measures would limit the area impacted and therefore presents low risk of cumulative effects to soils, assuming future stand entries would likely use existing trails and landings.

Chapter II – C.1. "Mitigation Measures For Action Alternative" includes measures that would help minimize risk of impacts to soils during the proposed activities. These mitigation measures are standard practices that may be applied to all harvest activities associated with the proposed Browns Gulch Timber Sale. Recommended site-specific, contract design mitigation measures would be provided following the selection of an alternative.

D. *Big Game Winter Range, Elk Security and Vulnerability*

1. Effects on Big Game Winter Range:

No Action Alternative:

Under this alternative cover in the State section would not be dramatically altered over the short-term. Existing stands would continue to provide good thermal cover for elk, which would provide the greatest benefit to them in winter.

Action Alternative:

Under this alternative, ~60 acres of cover would be removed, reducing that which would be available to elk during winter. Approximately 204 acres of dense mature forest (~70% canopy closure) would remain unharvested that would provide thermal protection and hiding cover in winter and an additional 181 acres of open forest (~20-69% canopy closure) would remain untreated. Reducing ~60 acres of cover would represent a minor cumulative reduction within the wildlife analysis area. Following treatment, approximately 2,285 acres (40%) of dense, mature forest and 2,231 acres (39%) of open forest would remain within the 5,760 acre analysis area (9 sections). The remaining 21% of the analysis area is comprised of grassland habitats. Livestock grazing would continue on the project area, however, no appreciable changes in livestock use or distribution would be anticipated. Any indirect or cumulative impacts to elk that resulting from cover removal would be localized and minor and would likely not be detectable in the population at the Hunting District level. Indirect effects, such as disturbance and displacement as a result of harvest activity would not be expected, as harvest operations would generally be restricted to the summer and fall months.

2. Effects on Elk Security and Vulnerability

No Action Alternative:

Under this alternative, no immediate change from the present condition would occur. Elk hiding cover and access would remain essentially unchanged. Over time and in the absence of wildfires, conifer cover would continue to expand into non-forested grasslands, further increasing amounts of hiding cover and size of potential security blocks. Selection of

this alternative would provide the lowest risk of increasing elk vulnerability over the short term and over the long term (>20 years) in the absence of wildfires and other natural disturbance agents. Subsequently, hunter opportunity would have the least risk of being impacted under this alternative.

Action Alternative:

Under the Action alternative, ~60 acres of hiding and escape cover would be removed within four treatment areas, reducing that which would be available to elk during the general hunting season. In conjunction with harvest activities, new roads and road segments would have key portions obliterated and re-contoured to minimize the potential for increased motorized access from existing levels. Approximately 204 acres of dense, mature forest (~70% canopy closure) would remain unharvested that would provide escape and screening cover, and an additional 181 acres of open forest (~20-69% canopy closure) would remain untreated. These patches would remain connected to other adjacent stands on BLM ownership, thus maintaining greater effective size. Reducing ~60 acres of cover would represent a minor cumulative reduction within the wildlife analysis area. However, minor proportional increases in elk vulnerability could be expected (both localized and cumulative). This could result in a minor adverse cumulative effect by increasing the difficulty that DFWP would have in meeting their Elk Plan objective for maintaining 1st-week bull harvest below 40-45% during the first week of the general big game hunting season. Following treatment, approximately 2,285 acres (40%) of dense, mature forest and 2,231 acres (39%) of open forest would remain within the 5,760 acre wildlife analysis area. The remaining 21% of the analysis area is comprised of grassland habitats. Livestock grazing would continue on the project area, however, no appreciable changes in livestock use or distribution would be anticipated, nor would effects related to elk security. Any indirect or cumulative impacts to elk that resulting from cover removal associated with this proposal would be minor, and would likely not be detectable in the population at the Hunting District level. Any potential direct disturbance or displacement of elk during hunting season would be minor and of short duration (i.e., one operating season).

Quality of cover that would remain post-treatment across the 385 acres of forested habitat in section 16 would be similar to that found within the harvest units. Proposed treatments would be moderate to intensive, and most would remove ~76% of the existing timber volume. Overstory canopy closure would be removed by a similar amount. About 100% of

the existing volume would be removed in harvest unit T1, which would resemble an eight-acre clearcut following treatment. Timbered stands occurring on these and other similar sites were historically distributed in a patchy, fragmented condition (Gruell 1983). No cover capable of functioning as hiding cover would be retained within the units post-harvest and cover would likely not be represented on these sites for ~30 years. The proposed harvest would result in loss of hiding cover important for elk, which would result in a low increase in elk vulnerability in the immediate area. Loss of hiding cover would be expected to result in minor cumulative increases in vulnerability. Elk using the project area at the time of road construction and active logging would be likely be displaced to other habitats with less disturbance for the duration of the activity.

Within the 22,235 acre watershed analysis area, road density is presently ~ 1.48 miles per square mile. Road construction proposed would increase road density to ~ 1.54 miles per square mile. Should roads be obstructed and rendered unusable following use for harvest activities, the functional road density would remain at about 1.48 miles per square mile. Existing forested acres within the analysis area were estimated at ~10,154. About 1,458 acres of additional forest were harvested between 1985 and 2001. Following the proposed harvest, the remaining acres of forest would be reduced to ~10,094 acres and total acres harvested would be increased to ~1,518 acres (6.8%) in the analysis area. None of these acres would be considered to provide or contribute to secure elk cover following harvest.

The proposed harvest would occur in stands from existing edges of three relatively distinct forest patches. An increase in edge to patch area ratios would occur, effectively creating some additional edge habitat. This increase would be minor due to the size and location of the harvest in relation to existing forested patches. No known wildlife corridors of notable importance would be affected by the proposed activities.

3. Cumulative Effects:

Harvesting of timber has occurred on nearby BLM and private lands and could continue into the future. The proposed State harvest would contribute cumulatively to reductions of mature forest cover that have occurred since ~1985. While the harvested acreages proposed are

relatively small, they would cumulatively contribute to minor increases in elk vulnerability, winter range effectiveness and fragmentation. Livestock

grazing also occurs on section 16 and the surrounding parcels, however, measurable adverse effects associated with timber management and

grazing in combination are not anticipated. Harvesting in section 16 in a manner that emulates natural disturbance processes would be expected to have a minor positive cumulative influence on ecosystem integrity on these sites that were sparsely forested under natural disturbance regimes. Minimal cumulative influences on access would be anticipated following road obliteration efforts.

The access route to the proposed project area would require 2.1 miles of new road construction. Open road densities are already high and cover capable of providing security is minimal in this area. No treatments would occur in stands within the State ownership that meet the Hillis et al. (1991) definition of security cover. Consequently, security cover for elk would not be affected measurably. The access route, if left open following use, however, would increase elk vulnerability in the area. The actual extent of increase is uncertain as many factors can influence vulnerability (e.g. size, extent and juxtaposition of security areas and migration corridors; type, structure, amount and density of vegetation; road density; ease of human accessibility, hunting pressure, hunting regulations, and hunter behavior, etc.) (DFWP 1992:8). Variations in weather conditions from year to year can also influence elk vulnerability. However, elk that might use this area would likely have a greater potential for vulnerability if the route were to remain accessible. By implementing mitigation efforts such as obliterating/recontouring the road surface, scattering slash and seeding, motor vehicle and foot travel on this route would dramatically decrease. An expected "no effect" post treatment can result from such efforts if use of a newly constructed road is made as difficult or more difficult to negotiate than adjacent unroaded areas.

E. Threatened, Endangered and Sensitive Species

To display and address the issues of T & E and Sensitive Species the following Fine Filter Wildlife Checklist for the Central Land Office is presented.

CHECKLIST FOR ENDANGERED, THREATENED AND SENSITIVE SPECIES CENTRAL LAND OFFICE

Threatened and Endangered Species	[Y/N] Potential Impacts and Mitigation Measures N = Not Present or No Impact is Likely to Occur Y = Impacts May Occur (Explain Below)
<p>Bald Eagle (<i>Haliaeetus leucocephalus</i>) Habitat: late-successional forest <1 mile from open water</p>	<p>[N] The nearest potential nesting and roosting habitat occurs along the Ruby River and Ruby Reservoir, which are located about 6 miles west of the Browns Gulch parcel. No nesting habitat occurs on, or within one mile of the project area, and the project area likely occurs outside of any bald eagle nesting home range. Thus, no direct, indirect or cumulative effects to bald eagles associated with this project are anticipated.</p>
<p>Canada Lynx (<i>Felis lynx</i>) Habitat: mosaics—dense sapling and old forest >5,000 ft. elev.</p>	<p>[N] Suitable lynx habitat is potentially present in the Gravelly Mountains (MNHP 2001). However, habitats high in coarse woody debris that are preferred for denning and large acreages of dense conifer regeneration at high elevations that are preferred for foraging are not present in the project area. Within the cumulative effects analysis area, lynx habitat is marginal due to natural and human induced fragmentation, and the high level of interspersed native grassland habitat and dry forest types. Lynx could occasionally use the project and analysis areas. However, due to the small number of acres of subalpine fir type (28 acres) that would be treated and generally low suitability of habitat in the cumulative effects analysis area, direct, indirect or cumulative impacts to lynx would not be expected to occur as a result of this project.</p>

Grizzly Bear (*Ursus arctos*)

Habitat: recovery areas, security from human activity

[N] The project area lies outside of any grizzly bear recovery area. The nearest recovery area is the Yellowstone Grizzly Bear Recovery Zone (USFWS 1993) situated approximately 35 miles southeast of the project area. The project area is comprised of dry forest and mixed forest-grassland habitats that tend to be used by bears infrequently. Transient use of the Gravellys occurs occasionally (R. Wiseman USFS Bio. pers. comm. September 23, 1999), and 27 bear observations occurring within 20 miles of the project area have been documented since May 1985 (USFS unpubl. data 9/29/99). No recent, frequent sightings of bears have been documented for this area. Riparian habitats preferred by bears occur in the cumulative effects area along Barton Gulch (just south of the Brown's parcel). This creek supports low levels of hiding cover and major portions are paralleled within ~ 100 ft. by an open road rendering the habitat poorly suited for use by bears. No sightings have been documented within these drainages since 1985 and human access levels are presently high. Approximately 2 miles of new road would be constructed to low standard. All new roads would be blocked at suitable locations following treatment to minimize the potential for newly created access that could further reduce existing levels of security. Methods that would be incorporated for blocking roads would include spot obliteration and recontouring (i.e., sections of at least 150 feet) at 4 locations, culvert removal at 3 locations and slash distribution at select sites on the road surface. The potential for any measurable increases in bear-human conflicts following harvest and road construction activities under the Action Alternative are expected to be low. Adverse-direct, indirect and cumulative impacts to bears as a result of this project are expected to be minimal.

<p>Gray Wolf (<i>Canis lupus</i>) Habitat: ample big game pops., security from human activity</p>	<p>[N] The project area falls within the Yellowstone Nonessential Experimental Area for gray wolves. Members of the Freezeout Pack may occasionally use portions of the project area or cumulative effects analysis area, however, the majority of documented activity has occurred >5 miles to the south (J. Fontaine, USFWS Biologist Pers. Comm. 1/31/02). Due to the size and nature of the proposed harvest, activities associated with this proposal are not expected to effect wolves or recovery efforts (J. Fontaine, USFWS Biologist Pers. Comm. 1/31/02). Should a new den be located within one mile of any proposed harvest units, activities would cease and a DNRC Biologist would be contacted immediately. Mitigations would then be developed and implemented to minimize adverse impacts to wolves prior to initiating harvest activity.</p>
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DNRC Sensitive Species	<p>[Y/N] Potential Impacts and Mitigation Measures N = Not Present or No Impact is Likely to Occur Y = Impacts May Occur (Explain Below)</p>
<p>Flammulated Owl (<i>Otus flammeolus</i>) Habitat: late-successional ponderosa pine and Doug.-fir forest</p>	<p>[Y] Breeding flammulated owls have been documented within the latilong (L38) that the project area lies within (Skaar 1996). Dry Douglas-fir cover types and stands containing old Douglas-fir relics on southerly exposures occur in the project area and cumulative effects analysis area that could potentially be usable by flammulated owls. However, usable existing snags are in relatively low abundance (<1/ac) in stands occurring in the project area. Within the cumulative effects analysis area on private and BLM lands, other potential patches of habitat tend to be small (<100 acres) and fragmented due to natural vegetation patterns and past logging and mining activity. About 32 acres of potentially suitable flammulated owl habitat would be harvested under this proposal. Approximately 80 acres of potential habitat would remain untreated in the project area. Proposed treatments in the potential habitat would likely reduce the density of mature trees to levels not preferred by flammulated owls. Thus, minor adverse indirect and cumulative effects to flammulated owls as a result of this project would be anticipated</p>

<p>Boreal Owl (<i>Aegolius funereus</i>) Habitat: mature to late-successional forest >5,200 ft. elev.</p>	<p>[N] The parcel involved in this project maintains elevations that range from about 7,700-8,500 feet, which are within the elevational range frequently used by boreal owls. However, cool, structurally diverse, spruce-fir habitats at latter stages of development, which are preferred by boreal owls do not occur within the project area. Dry Douglas-fir and lodgepole stands found within the project area are too warm and limited structurally to provide adequate habitat for boreal owls. No direct, indirect or cumulative impacts to boreal owls would be expected to occur as a result of this project.</p>
<p>Black-Backed Woodpecker (<i>Picoides arcticus</i>) Habitat: mature to old burned or beetle-infested forest</p>	<p>[N] Black-backed woodpeckers have been documented within the latilong (L38) that encompasses the project area (Skaar 1996), and are known to occur in the Tobacco Root Mountains (USFS 1999). However, stands found within the project area are not presently experiencing substantial insect activity, and no recent burns (≤5 years old) occur within the section or cumulative effects analysis area. Thus, foraging and nesting opportunities are presently limited. No direct, indirect or cumulative effects to black-backed woodpeckers would be expected to occur as a result of this project.</p>
<p>Pileated Woodpecker (<i>Dryocopus pileatus</i>) Habitat: late-successional ponderosa pine and larch-fir forest</p>	<p>[N] Pileated woodpeckers have not been reported for the latilong that encompasses the project area (Skaar 1996). The project area is poorly suited for use by pileated woodpeckers. As suitable habitat is not present in the project area or cumulative effects analysis area, no impacts to pileated woodpeckers would be expected to occur as a result of this project.</p>
<p>Northern Bog Lemming (<i>Synaptomys borealis</i>) Habitat: sphagnum meadows, bogs, fens with thick moss mats</p>	<p>[N] No sphagnum meadows or bogs occur in the project area. Thus, no impacts to bog lemmings would be expected to occur as a result of this project.</p>
<p>Peregrine Falcon (<i>Falco peregrinus</i>) Habitat: cliff features near open foraging areas and/or wetlands</p>	<p>[N] No extensive cliff features or suitable foraging areas occur within 1 mile of the project area. No direct, indirect or cumulative effects associated with this project are anticipated.</p>
<p>Harlequin Duck (<i>Histrionicus histrionicus</i>) Habitat: white-water streams, boulder and cobble substrates</p>	<p>[N] Breeding harlequin ducks have been found in this latilong (Skaar 1996), however, no high gradient streams suitable for use by harlequins occur within the project area or along proposed haul routes. No impacts to harlequin ducks would be expected to occur as a result of this project.</p>

<p>Ferruginous Hawk (<i>Buteo regalis</i>) Habitat: prairies and badlands</p>	<p>[N] Breeding ferruginous hawks have been documented within the latilong that encompasses the project area. However, badland habitats and areas with small buttes and bluffs that are preferred nesting sites do not occur on or within one mile of the project area. However, ferruginous hawks may occasionally forage in the vicinity or potentially nest in grasslands found within the project area. As preferred nesting habitat does not occur on or within one mile of either parcel included in this proposal, no localized or cumulative impacts to ferruginous hawks are expected. However, should any ground-nesting hawks be observed within 400 meters of proposed haul routes or active harvest units, harvest activities would cease and a DNRC biologist would be contacted immediately by the sale administrator. Site-specific mitigations would then be designed to protect the nest site if nesting ferruginous hawks are detected</p>
<p>Mountain Plover (<i>Charadrius montanus</i>) Habitat: short-grass prairie, alkaline flats, prairie dog towns</p>	<p>[N] No short-grass prairie or prairie dog towns occur on, or within one mile of the project area. No impacts to mountain plovers are expected as a result of this project.</p>
<p>Townsend's Big-Eared Bat (<i>Plecotus townsendii</i>) Habitat: caves, caverns, old mines, large-hollow snags</p>	<p>[N] Several mines occur in the vicinity of the Browns and Granite parcels. However, DNRC is unaware of any mines on these parcels or close vicinity that would be suitable for use by Townsend's big-eared bats. Thus, impacts to Townsend's big-eared bats are not anticipated as a result of this project.</p>

LIST OF INDIVIDUAL SCOPING NOTICES

Friends of the Wild Swan, Swan Lake, MT
Greater Yellowstone Coalition, Bozeman, MT
MT Ecology Center, Missoula, MT
Alliance for the Wild Rockies, Missoula, MT
American Wildlands, Bozeman, MT
National Wildlife Federation, Missoula, MT
Montana Audubon Council, Dillon, Helena and Condon, MT
Montana Wilderness Association, Helena, MT
Salmon Intermountain, Salmon, ID
Headwaters Sierra Club, Bozeman, MT
American Fisheries Society, Bozeman, MT
Pintlar Audubon Society, Twin Bridges, MT
MWF, Helena, MT
Beaverhead Concerned Citizens, Butte, MT
Anaconda Sportsmen, Anaconda, MT
Skyline Sportsmen's Assoc. Inc., Butte, MT
Montana Coalition for Appropriate Management of State Lands,
Butte, MT
Tribal Historic Preservation Office, Pablo, MT
U S Department of Interior, BLM, Dillon and Butte, MT
USFS – Madison Ranger District, Ennis, MT
MT Dept of FW & P, Wildlife Biologist, Bozeman and Sheridan, MT
Matador Ranch, Dillon, MT
Wood Three Creek Ranches, Sheridan, MT
Easton Pacific/Sauerbier Ranches, Inc., Alder, MT
Doggett Ranches, Alder, MT
Norwest Capital Mgmt. & Trust, Great Falls, MT
Gilman I H Cattle, Lessee, Alder, MT
Max & Terri Moltich, Sheridan, MT
James & Robert Bowling, N. Miami, FL
Stuart Lewin, Great Falls, MT
Hanover Gold, Veradale, WA
Bill Armstrong, Dillon, MT
Elizabeth Brann & Dan Svoboda, Dillon, MT
Jackie Foster, Dillon, MT
Clayborn J. Anders, Missoula, MT
Graeme Mc Dougal, Dillon, MT
Don & Darrell Goodman, Dillon, MT
Allan Crail, Shelly, ID

Leonard Sargent, Bozeman, MT
Charles Boling, Dillon, MT
Glenn Hockett, Bozeman, MT
Mrs. Hans Andersen, Dillon, MT
Keith Andersen, Dillon, MT
Jim Phelps, Billings, MT
Calvin & John Erb, Dillon, MT
Doug Webber, Missoula, MT
Louise Bruce, Dillon, MT
Monty Hankinson, Dillon, MT
Bill Allen, Dillon, MT
Montana Logger Association, Kalispell, MT
Louisiana Pacific Corporation, Belgrade and Deerlodge, MT
R-Y Timber Inc., Townsend and Livingston, MT
Mt. Wood Products Association, Helena, MT
Plum Creek Timber Co., Columbia Falls, MT
F H Stoltze Land & Lbr., Columbia Falls, MT
Montana Eastside Forest Practices Committee, Bozeman, MT
Lumber Products, Dillon, MT
Weyerhaeuser Co., Kalispell, MT
DNRC Archaeologist, P. Rennie
DNRC Soil Scientist, J. Collins
DNRC Hydrologist, G. Mathieus
DNRC Wildlife Biologist, R. Baty
DNRC Agriculture & Grazing, K. Chappell

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LIST OF PREPARERS

Chuck Barone	Forester, DNRC Dillon
Rick Strohmyer	Unit Manager, DNRC Dillon
Ross Baty	Wildlife Biologist, DNRC Missoula
George Matheius	Hydrologist, DNRC Missoula
Jeff Collins	Soils Scientist, DNRC Missoula
Patrick Rennie	Archaeologist, DNRC Helena
Garry Williams	Forest and Lands Manager, DNRC Helena

CHECKLIST ENVIRONMENTAL ASSESSMENT

Project Name: Wilson Creek Salvage Timber Sale

Proposed Implementation Date: July 1, 2002

Proponent: Montana Department of Natural resources and Conservation, Bozeman Unit Office, 151 Evergreen, Bozeman, MT 59715 Ph: 406-586-5243

Type and Purpose of Action: The proposed action would salvage harvest an estimated 450MBF of dead timber burned on state land during the Purdy fire in September 2001. The fire burned an estimated 5,000 acres of which approximately 200 acres was state land. An estimated 75 acres the state ownership incurred 100% tree mortality. The salvage proposal would harvest up to a estimated 60 acres of the burned area from 4 cutting units. All harvest activities would be ground based operations/tractor/rubber tire skidder. All of the roads on the state land for the proposal are in place and no new permanent road construction is planned. Up to .35 miles of temporary road or skid trail access would be needed.

The purpose of this proposal is to salvage the economic value of the timber resources that were destroyed by fire and ensure appropriate conditions exist for regeneration of forested stands. This section of land is part of the school trust lands held by the State of Montana in trust for the support of specific beneficiary institutions such as public schools, state colleges and universities and other specific institutions such as the school for the deaf and blind (Enabling Act of Feb 22, 1889; Montana Constitution 1972). The Board of Land Commissioners and the Department of Natural Resources and Conservation are required by law to administer these trust lands for the largest measure of reasonable and legitimate return over the long run for those beneficiary institutions (Section 77-1-202, MCA). This particular tract is a classified grazing section held in trust for the support of Public Schools.

Location: S1/2 Section 36, T3S-R4E

County: Gallatin

I. PROJECT DEVELOPMENT

1. PUBLIC INVOLVEMENT, AGENCIES, GROUPS OR INDIVIDUALS CONTACTED: Provide a brief chronology of the scoping and ongoing involvement for this project.	A legal notice was published in the Bozeman Daily Chronicle on December 30, 2001 and January 3, 2002 to request comments by January 18, 2002. On December 27, 2001 scoping letters, requesting comments were mailed to more than 15 individuals, organizations and resource specialists known to have an interest in forest management activities in this vicinity. Comments were received from, the Ecology Center and the Alliance for the Wild Rockies, R-Y Timber, US Forest Service - Bozeman Ranger District. The DNRC Hydrologist conducted an on-site field review. Montana Fish, Wildlife and Parks, Fisheries Biologist also provided input.
2. OTHER GOVERNMENTAL AGENCIES WITH JURISDICTION, LIST OF PERMITS NEEDED:	No additional permits are required for the harvest proposal. There are no new stream crossings that would require a "124" permit and no slash burning that would require a burning permit. DNRC-Bozeman Unit has acquired a Temporary Road Use Agreement from the adjoining landowners to conduct management activities on the State ownership.
3. ALTERNATIVES CONSIDERED:	<u>No Action</u> : A salvage harvest of burned timber would not be conducted on the school trust lands. No income from the timber resources

	<p>would be received. DNRC could expend forest improvement funds to seed selected areas with grass and cut a portion of the standing dead trees to ensure sufficient downed woody debris is on the ground for protection of soil resources. The restoration work could be conducted during the summer months of 2002.</p> <p>Proposed: Salvage harvest an estimated 350,000 board feet of burned, dead timber to recover residual value of the resource. Seed disturbed sites and selected sensitive areas with grass prior to winter so the seed is available for establishment in the spring. Physically close any temporary roads or skid trails to prohibit future use, install appropriate drainage prior to closure and grass seed disturbed sites upon completion of use. The project would be expected to begin as early as July 1, 2002 and be completed no later than November 1, 2002.</p>
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II. IMPACTS ON THE PHYSICAL ENVIRONMENT

RESOURCE	[Y/N] POTENTIAL IMPACTS N = Not Present or No Impact will Y = Impacts may occur (explain below)
4. GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE: Are fragile, compactible or unstable soils present? Are there unusual geologic features? Are there special reclamation considerations? Are cumulative impacts likely to occur as a result of this proposed action?	<p>[Y] Jeff Collins, DNRC Soils Scientist was consulted for input. (See attached Soils Review)</p> <p>It is anticipated that a limited amount of soil movement will occur on the state land with or without the proposed salvage harvest as a result of the reduced vegetation from the fire. An estimated .35 miles of temporary road or skid trail access would need to be constructed to access two units associated with the proposed action. The following mitigation measures would be incorporated into the proposal to reduce any potential soil impacts.</p> <p>Mitigations incorporated in the proposal:</p> <ul style="list-style-type: none"> • Exclude equipment operation on slopes greater than 35% slope. • Install sediment infiltration on outlets of drainage features with direct delivery to streams or ephemeral draws. • Limit operations to conditions that are dry, frozen or snow covered. • Grass seed all disturbed areas. • Close all temporary roads or skid trails through spot recontouring, and the distribute slash and debris upon completion of use.

II. IMPACTS ON THE PHYSICAL ENVIRONMENT

	<ul style="list-style-type: none"> • Install and maintain road drainage concurrent with activities. • Maintain a minimum of 5-10 tons/acre of coarse woody debris on site. • Implement BMP'S in the design and operation of the salvage harvest.
<p>5. WATER QUALITY, QUANTITY AND DISTRIBUTION: Are important surface or groundwater resources present? Is there potential for violation of ambient water quality standards, drinking water maximum contaminant levels, or degradation of water quality? Are cumulative impacts likely to occur as a result of this proposed action?</p>	<p>[Y] The proposal was reviewed on site by George Mathieus, DNRC Hydrologist (See attached report).</p> <p>The proposed sale area is located near the Gallatin Gateway, approximately 10 air miles south of Bozeman, Montana. The proposed sale area is located in a State half section that lies within the Wilson Creek watershed. Both Wilson Creek and an unnamed ephemeral tributary flow through the state section.</p> <p>The watershed analysis area addresses each watercourse draining the proposed project area to facilitate hydrologic analysis and cumulative watershed effects assessment. A description of those drainage's follows:</p> <p><i>Wilson Creek:</i> Wilson Creek is an 8,100-acre watershed, which receives between 18 inches at the valley floor to 100 inches at the headwaters of annual precipitation. This second order stream is a tributary to the Gallatin River. Wilson Creek is a Class I perennial stream according to the Montana Streamside Management Zone (SMZ) Law and Rules.</p> <p><i>Little Bear Creek:</i> Little Bear Creek is a 3,300-acre watershed, which also receives approximately 18-100 inches of annual precipitation. This first order stream is a tributary to Big Bear Creek. It is a Class I Stream.</p> <p>The Purdy fire burned an estimated 30% of the entire reach of the Wilson Creek drainage (~2.5 miles of ~ 8.5 miles). There is a substantial risk of increased surface runoff and erosion from the drainage basin and from the existing road system.</p> <p>Operations conducted in or near draw features and on steeper slopes have a higher risk of impacting soil resources and water quality. The following recommended mitigation measures would help minimize risk of impacts during the proposed activities. These mitigation measures are standard practices that may be applied to all harvest activities associated with the proposed Wilson Creek Fire Salvage Timber Sale.</p> <p><u>General Road Design and Mitigation Measures:</u></p> <ul style="list-style-type: none"> • Plan, design and improve existing road

II. IMPACTS ON THE PHYSICAL ENVIRONMENT

systems to meet long-term access needs and to fully comply with current BMPs.

- Construct drain dips, grade rolls and other drainage features where necessary and practical to insure adequate road surface drainage.
- Grass seed all newly constructed or reconstructed road or skid trail cut and fills immediately after excavation or upon closure of the road or trail.
- Leave all temporary or abandoned roads in a condition that will provide adequate drainage and will not require future maintenance.
- Filter outlets of all ditches with direct delivery to streams or ephemeral draws with slash or filter fabric and straw bales.
- Limit road use and hauling to dry, frozen or snow covered conditions. Suspend operations when these conditions are not met **before** rutting occurs.

General Design and Mitigation Recommendations for Harvest Units:

- Implement Forestry BMPs as the minimum standard for all operations with the proposed timber sale.
- Protect all ephemeral draws, springs and wet areas with marked equipment restriction zones (ERZ).
- Develop a skidding plan prior to equipment operations.
- Leave 5 - 10 tons per acre of coarse woody material larger than 3 inches in diameter scattered throughout the sale units, predominately perpendicular to the slope.
- Seed skid trails over 30%. Scatter slash on skid trails where feasible.

6. AIR QUALITY: Will pollutants or particulate be produced? Is the project influenced by air quality regulations or zones (Class I airshed)? Are cumulative impacts likely to occur as a result of this proposed action?

[N] Air quality is not expected to be impacted by the proposed activity. No slash burning is expected to occur. Debris not removed from the site will be distributed on the ground to reduce the potential for erosion and protect the soil resources.

7. VEGETATION COVER, QUANTITY AND QUALITY: Will vegetative communities be permanently altered? Are any rare plants or cover types present? Are cumulative impacts likely to occur as a result of this proposed action?

[N] The Purdy fire burned approximately 5,000 acres during September 2001. The crown fire that passed through the State ownership killed 100% of the trees on an estimated 200 acres of the 320-acre track. The state land was nearly 90% forested prior to the fire. Approximately 120 acres of forested area remains. The stands

II. IMPACTS ON THE PHYSICAL ENVIRONMENT

result of this proposed action?

on the State tract were primarily Douglas fir and spruce. There was a timber harvest conducted in 1983 on approximately 40 acres. A majority of these harvest areas were not a part of the burn.

Salvage harvest activities would focus on harvesting up to 60 acres of burned timber. Natural regeneration of Douglas-fir is expected to occur from along the edge of the burned area. Seed drift was noted during post-fire site visits. It is unknown whether the seed drift from the edge of the fire will adequately provide seed for the entire burned areas. All units will be monitored the next few years to evaluate future planting needs.

Although the tree canopy on approximately 200 acres was 100% killed, the fire intensity was considered moderate since most of the ground vegetation is expected to survive and flourish this growing season. Surface vegetation was consumed but root systems appear to have survived, except in a few areas. No rare or special concern plant species were known to exist in the project area prior to the fire (Montana Natural Heritage Program, 11/01). There are no old growth stands that would meet a Green et al. definition within the proposed project area. The no action alternative would have the least potential for affecting ground vegetation. Ground skidding activities associated with the proposed salvage harvest would have a low to moderate potential to affect vegetation. The mitigations measures would be incorporated into the harvest plan are expected to be effective in reducing the potential for vegetative impacts.

Mitigations incorporated in the harvest alternative:

- Skidding to be conducted only when soil is dry, snow covered or frozen.
- Equipment will be pressure washed prior to moving on site as a measure to prevent the introduction of weeds to the site.
- The area would be monitored for weed infestations and treated as necessary for 3 years after the harvest.

The fire fragmented the already naturally fragmented forested landscape and the proposed project would have minimal influence on any further habitat fragmentation.

TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS: Is there substantial use of

[N] Ross Baty, DNRC Wildlife Biologist was consulted for input. Joe Fontaine, USEWS

II. IMPACTS ON THE PHYSICAL ENVIRONMENT

the area by important wildlife, birds or fish? Are cumulative impacts likely to occur as a result of this proposed action?

Biologist was also contacted by R. Baty, (See attached checklist).

Prior to the fire, the area provided habitat for deer, elk, moose, black bear, grouse, squirrels and assorted other game and non-game species. As the area revegetates and regenerates many of these species will resume their use of the area while other species not previously present will move in as a result of the changed conditions. Some species, dependant on fire-killed snags will experience an increase in available habitat. Other species dependent on closed canopy forest conditions will likely not utilize the area for several decades. There are no fish bearing streams in the proposed project area.

Due to the limited size of the project, unappreciable alteration of habitats preferred by ungulates, and duration and location of the proposed activities, no substantial long term, direct, indirect or cumulative impacts are expected to occur as a result of any of the alternatives considered.

Mitigations incorporated in the proposal:

- Retain trees that were snags prior to the fire and large diameter trees that are considered less than 50% merchantable and do not pose a significant safety hazard.
- Retain additional large diameter Douglas fir trees at the rate of 2 per acre where available for snag replacement.
- Maintain a minimum of 5-10 tons/acre of coarse woody debris on site.

Input received from the Montana Department of Fish, Wildlife and Parks Fisheries Biologist, Patrick Byorth, indicated that no fishery issues exist. In summary, no significant impacts on Wilson Creek or it's aquatic life beyond the impacts of the fire would be expected as long as best management practices were followed, adequate buffers associated with drainages were maintained and temporary roads or skid trails were adequately reclaimed. All if these measure would be observed.

9. UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES: Are any federally listed threatened or endangered species or identified habitat present? Any wetlands? Sensitive Species or Species of special concern? Are cumulative impacts likely to occur as a result of this proposed action?

[Y] The project area does not provide habitat for Bald Eagles. The project area may receive occasional transient use by grizzly bears, gray wolves and Canada lynx, however no denning or other appreciable use of the area has been documented. The project area lies 16 miles north of the Yellowstone Grizzly Bear Recovery Area. The project area does not provide preferred habitats suitable for lynx denning or foraging. Measurable direct, indirect or

II. IMPACTS ON THE PHYSICAL ENVIRONMENT

cumulative impacts are not expected for T/E species (See attached Species Checklist Assessment).

Habitat suitable for use by black-backed woodpeckers occurs in the project area and would be treated under the Action Alternative (ie., up to 60 acres). Habitat is also present in portions of the 5,000 acres associated with the Purdy Fire-2001 and within 140 acres of burned forest that would remain on the project area post treatment. As such the proposed project would reduce by a small proportion, the available habitat suitable for use by black-backs at the landscape scale. Thus, the project would result in minor, indirect and cumulative adverse effects to black-backed woodpeckers. On State ownership the proposed salvage acreage would be approximately 30% of the burned State land. At a landscape level it is expected that the cumulative salvage on the state parcel and other private and federal ownerships would be only a small fraction of the total burn area.

Habitats and elevations used by boreal owls occur within the project area, however, proposed activities would not be expected to alter any usable existing habitat, or create disturbance that would be expected to measurably influence nesting pairs, should they occur in the project area or adjacent parcels.

The project area does not provide habitat for flammulated owls, pileated woodpeckers, northern bog lemmings, harlequin ducks, ferruginous hawks, peregrine falcons, mountain plovers or Townsend's big-eared bats (See attached Species Checklist Assessment).

Mitigation incorporated into the proposal:

- Retain 140 acres (70% of burned area on state land) of no harvest that would serve as Black-Backed Woodpecker habitat and habitat substrate for other species associated with snags and large woody debris.
- Leave nonmerchantable trees standing for residual cover, structure and feeding substrate that are not needed for immediate soil protection.
- Retain snags, snag recruitment trees and large woody debris on site (minimum of 5-10 tons/acre).
- Immediately suspend operations and contact DNRC Wildlife Biologist if a wolf den or T & E species is observed in the project area and develop appropriate mitigations before re-commencing project activities.

II. IMPACTS ON THE PHYSICAL ENVIRONMENT	
10. HISTORICAL AND ARCHAEOLOGICAL SITES: Are any historical, archaeological or paleontological resources present?	<p>[N] There are no known historical, archaeological or paleontological sites within the project area. DNRC Archaeologist, Patrick Rennie, reviewed the proposal and determined it is unlikely that any cultural resource sites would be encountered during activities conducted under any of the alternatives considered.</p> <p>Mitigations incorporated into the proposal:</p> <ul style="list-style-type: none"> All operations will be immediately suspended in the vicinity and the DNRC Archaeologist contacted if cultural resources are identified.
11. AESTHETICS: Is the project on a prominent topographic feature? Will it be visible from populated or scenic areas? Will there be excessive noise or light? Are cumulative impacts likely to occur as a result of this proposed action?	<p>[Y] The Purdy fire north perimeter is already clearly visible from the Gallatin Valley. The proposed salvage harvest units would be a continuation of the salvage harvest conducted on the adjacent private ownership located to the south. The 100% killed timber does not provide for a harvest design to selectively blend the proposed salvage harvest into the landscape. The existing unburned edge of green timber would be maintained to lessen the visual effects as one approaches the site from the valley floor. Based on the size and scope of the proposed salvage harvest and the existing burned landscape, impacts on the aesthetics of the area would be minimal.</p>
12. DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AIR OR ENERGY: Will the project use resources that are limited in the area? Are there other activities nearby that will affect the project? Are cumulative impacts likely to occur as a result of this proposed action?	<p>[N] The Purdy fire burned an estimated 5,000 acres of which approximately 90% was forested. The greatest portion of the fire area occurred on federal ownership administered by the Gallatin National Forest.</p> <p>The Bozeman Ranger District is currently preparing a scoping notice for potential salvage operations on their holdings located 1 mile to the south of the State land.</p> <p>Salvage harvest operations have been conducted on the adjacent private land immediately following the fire. Approximately 385 acres has been treated in the private section to the south.</p>
13. OTHER ENVIRONMENTAL DOCUMENTS PERTINENT TO THE AREA: Are there other studies, plans or projects on this tract? Are cumulative impacts likely to occur as a result of other private, state or federal actions that are	<p>[N] DNRC will be a participant in the Purdy Weed Management Area, Integrated Noxious Weed Management Plan that is expected to be implemented during the Spring 2002 through Fall of 2004.</p>

II. IMPACTS ON THE PHYSICAL ENVIRONMENT

under MEPA review (scoping) or
permitting review by any state agency
w/n the analysis area?

III. IMPACTS ON THE HUMAN POPULATION

RESOURCE	[Y/N] POTENTIAL IMPACTS AND MITIGATION MEASURES
14. HUMAN HEALTH AND SAFETY: Will this project add to health and safety risks in the area?	[N]
15. INDUSTRIAL, COMMERCIAL AND AGRICULTURAL ACTIVITIES AND PRODUCTION: Will the project add to or alter these activities?	[N] The state land included in the proposed project is classified grazing and has been leased for that use for many years. It is currently leased for 32 AUM'S per year at the rate of \$5.52/AUM for an annual income of \$176.64. The grazing lease would continue under the current lease until renewal scheduled for 2010.
16. QUANTITY AND DISTRIBUTION OF EMPLOYMENT: Will the project create, move or eliminate jobs? If so, estimated number. Are cumulative impacts likely to occur as a result of this proposed action?	[N] The proposed salvage harvest would result in a harvest of an estimated volume of 350,000 board feet of timber from the state land. This would be a relatively small sized project for the vicinity and would represent a 2-3 months of work for a logging contractor. There would not be any permanent shift or creation of long-term jobs as a result of proposed action alternative.
17. LOCAL AND STATE TAX BASE AND TAX REVENUES: Will the project create or eliminate tax revenue? Are cumulative impacts likely to occur as a result of this proposed action?	[N] People are currently paying taxes from the wood products industry in the region. Due to the relatively small size of the timber sale program, there will be no measurable cumulative impact from this proposed action on tax revenues.
18. DEMAND FOR GOVERNMENT SERVICES: Will substantial traffic be added to existing roads? Will other services (fire protection, police, schools, etc) be needed? Are cumulative impacts likely to occur as a result of this proposed action?	[N] Salvage harvest would result in approximately 85-95 truckloads of logs delivered to mills in the vicinity on county and state roads. The roads in the vicinity are suitable for such use and are maintained in part through the taxes generated by the forest products industry.
19. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS: Are there State, County, City, USFS, BLM, Tribal, etc. zoning or management plans in effect?	[Y] In June 1996, DNRC began a phase-in implementation of the State Forest Land Management Plan (Plan). The management direction provided in the Plan comprises the framework within which specific project planning and activities take place. The plan philosophy and appropriate Resource Management Standards have been incorporated into the

	design of the proposed action.
20. ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES: Are wilderness or recreational areas nearby or accessed through this tract? Is there recreational potential within the tract? Are cumulative impacts likely to occur as a result of this proposed action?	[Y] With adjacent landowners permission for access and the purchase of a State Land Recreational Use License, persons may recreate on the State tract. However, recreational use in the past has been minimal. The proposed harvest is expected to reduce recreational use of the tract while activity is being conducted due to the noise and disturbance associated with the harvest. No affects to hunter opportunity is anticipated due to limited access and the habitats preferred by ungulates would not be appreciable altered.
21. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING: Will the project add to the population and require additional housing? Are cumulative impacts likely to occur as a result of this proposed action?	[N] There will be no measurable cumulative impacts related to population and housing due to the relatively small size of the timber sale program, and the fact that people are already employed in this occupation in the region.
22. SOCIAL STRUCTURES AND MORES: Is some disruption of native or traditional lifestyles or communities possible?	[N]
23. CULTURAL UNIQUENESS AND DIVERSITY: Will the action cause a shift in some unique quality of the area?	[N]
24. OTHER APPROPRIATE SOCIAL AND ECONOMIC CIRCUMSTANCES: Is there a potential for other future uses for easement area other than for timber management? Is future use hypothetical? What is the estimated return to the trust? Are cumulative impacts likely to occur as a result of this proposed action?	[Y] The proposed salvage harvest would generate an estimated trust income from stumpage of \$66,000 to \$81,000. The volume harvested and value received will depend on how quickly the burned timber is harvested and how much defect occurs as result of cracking and checking

EA Checklist Prepared By: Curt Tesmer
Name

Bozeman Unit Forester/DNRC
Title

5-08-02
Date

IV. FINDING	
25. ALTERNATIVE SELECTED:	The fire salvage harvest project as proposed.
26. SIGNIFICANCE OF POTENTIAL IMPACTS:	The proposed harvest will salvage an estimated 450 MBF of dead timber that was recently burned in the Purdy Fire. The salvage value is estimated to generate approximately \$66,000 to \$81,000 in trust revenue. The proposal would harvest approximately 30% of the forested state land burned in the fire. This proposal would affect only an estimated 1% of the burned forested area in the 5,000-acre Purdy Fire. It is estimated that cumulatively across all ownerships, less than 15% of the burned forestland would be salvage harvested.

There is no critical habitat for Endangered, Threatened and Sensitive Species in the project area. Appropriate and effective mitigation measures such as snag retention; snag recruitment, coarse woody debris retention and "no harvest" areas have been incorporated and designed into the proposal to retain habitat value for sensitive species and biodiversity on the state land. The proposed harvest areas are situated on primarily gentle terrain and benches well suited for traditional ground skidding operations.

Significant impacts are not anticipated as a result of the proposed salvage harvest

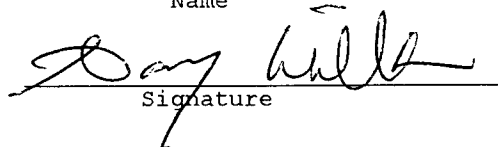
27. Need for Further Environmental Analysis:

☐ EIS ☐ More Detailed EA ☒ No Further Analysis

EA Checklist Approved By:

Garry Williams
Name

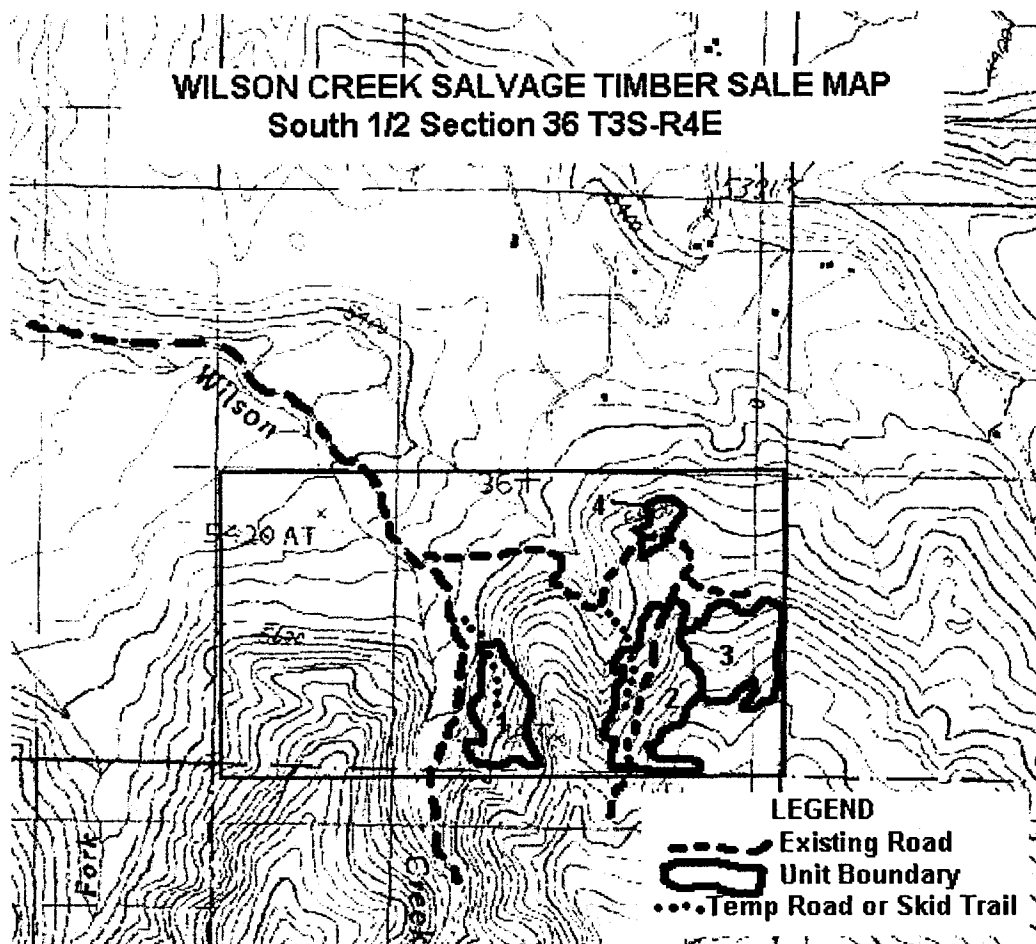
Central Land Office Area Manager
Title


Signature

5/20/02
Date

ATTACHMENTS

- Wilson Creek Salvage Timber Sale Map
- Wilson Creek Salvage Watershed Report, (G.Mathieus, 3-26-2002)
- Wilson Creek Salvage Checklist for Endangered, Threatened and Sensitive Species, (Ross Baty, 4-30-2002)
- Wilson Creek Salvage Soils Review, (J. Collins, 5-6-02)



Wilson Creek Salvage Watershed Report

Hydrology Existing Conditions & Affects Analysis
Wilson Creek Salvage Timber Sale
T3S-R4E, Section 36
Central Land Office, Bozeman Unit

George Mathieus
Forest Management Bureau
Hydrologist

March 26, 2002

Field Review Date: January 29, 2002

INTRODUCTION

The following document contains background information for the watershed, fisheries and soils portions of the proposed Wilson Creek Salvage Timber Sale Environmental Assessment. This analysis includes an existing condition assessment of all watersheds draining the proposed sale area. Write-up and assessments are based on a coarse filter screening approach, references to post-fire assessments and an on-site field review of all contributing areas within the proposed state section.

POTENTIAL ISSUES

Water Quality:

Land management activities such as timber harvest and road construction can impact water quality primarily by accelerating sediment delivery above natural levels to local stream channels and draw bottoms. These impacts are caused by erosion from road surfaces, skid trails, log landings and by the removal of vegetation along stream channels.

Cumulative Watershed Effects:

Cumulative watershed effects can be characterized as impacts on water quality and quantity that result from the interaction of disturbances, both human-caused and natural. Wildfires and timber harvest activities can affect the timing of runoff, increase sediment yields, increase peak flows and increase the total annual water yield of a particular drainage.

Cold Water Fisheries:

Land management activities such as timber harvest and road construction can impact fish habitat primarily by increasing water temperatures, accelerating sediment delivery above natural levels to local stream channels and by decreasing large woody debris input and shade cover through the removal of recruitable trees near the stream channel.

Soil Resources:

Equipment operations and timber harvest on wet sites or sensitive soils can result in soil impacts that effect soil productivity depending on area and degree of physical effects and amount or distribution of coarse woody debris retained for nutrient cycling.

Noxious Weeds:

Following disturbance events such as wildfires, fire suppression damage and timber harvest activities, invasion and spread of noxious weeds is more prevalent than in undisturbed areas. Noxious weed invasion and spread detrimentally influences surface cover, erosion and native species growth.

AFFECTED ENVIRONMENT

Watersheds:

The proposed sale area is located near the Gallatin Gateway, approximately 10 air miles south of Bozeman, Montana. The proposed sale area is located in a State half section that lies within the Wilson Creek watershed. Both Wilson Creek and an unnamed ephemeral tributary flow through the state section.

The watershed analysis area addresses each watercourse draining the proposed project area to facilitate hydrologic analysis and cumulative watershed effects assessment. A description of those drainage's follows:

Wilson Creek:

Wilson Creek is an 8,100-acre watershed, which receives between 18 inches at the valley floor to 100 inches at the headwaters of annual precipitation. This second order stream is a tributary to the Gallatin River. Wilson Creek is a Class I perennial stream according to the Montana Streamside Management Zone (SMZ) Law and Rules.

Little Bear Creek:

Little Bear Creek is a 3,300-acre watershed, which also receives approximately 18-100 inches of annual precipitation. This first order stream is a tributary to Big Bear Creek. It is a Class I Stream.

Regulatory Framework:

This portion of the Upper Missouri River basin, including the Wilson Creek drainage, is classified B-1 in the Montana Water Quality Standards. Waters classified B-1 are suitable for drinking, culinary and food processing purposes after conventional treatment; bathing, swimming and recreation; growth and propagation of salmonoid fishes and associated aquatic wildlife, waterfowl and furbearers; and agricultural and industrial water supply. State water quality regulations prohibit any increase in sediment above naturally occurring concentrations in waters classified B-1 (ARM 16.20.618 2(f)).

Naturally occurring means conditions or materials present from runoff or percolation over which man has no control or from developed land where all reasonable land, soil and water conservation practices have been applied. Reasonable land, soil and water conservation practices include methods, measures or practices that protect present and reasonably anticipated beneficial uses. The state of Montana has adopted Forestry Best Management Practices (BMPs) through its Non-point Source Management Plan as the principal means of meeting Water Quality Standards.

Existing beneficial uses in the immediate vicinity of the proposed sale area include water rights for groundwater sources

to include lawn & garden, irrigation, and domestic uses. Surface water sources include irrigation, fish/wildlife and stock uses. Downstream sensitive beneficial uses include aquatic life support, cold water fisheries and a surface water domestic use diverted from Wilson Creek. However, the surface domestic use has no surface water connectivity with the proposed sale activities.

The Gallatin River (MT41H001_020) is currently listed as a water quality limited water body (as per Section 303(d) of the Clean Water Act) in the 305(b) report. The 303(d) list is compiled by the Montana Department of Environmental Quality (DEQ) as required by Section 303(d) of the Federal Clean Water Act and the Environmental Protection Agency (EPA) Water Quality Planning and Management Regulations (40 CFR, Part 130). Under these laws, DEQ is required to identify water bodies that do not fully meet water quality standards, or where beneficial uses are threatened or impaired. These water bodies are then characterized as "water quality limited" and thus targeted for Total Maximum Daily Load (TMDL) development. The TMDL process is used to determine the total allowable amount of pollutants in a water body of watershed. Each contributing source is allocated a portion of the allowable limit. These allocations are designed to achieve water quality standards.

The Montana Water Quality Act (MCA 75-5-701-705) also directs the DEQ to assess the quality of state waters, insure that sufficient and credible data exists to support a 303(d) listing and to develop TMDL for those waters identified as threatened or impaired. Under the Montana TMDL Law, new or expanded nonpoint source activities affecting a listed water body may commence and continue provided they are conducted in accordance with all reasonable land, soil and water conservation practices. Total Maximum Daily Loads have not been completed for the Gallatin River drainage. DNRC will comply with the Law and interim guidance developed by DEQ through implementation of all reasonable soil and water conservation practices, including Best Management Practices and Resource Management Standards as directed under the State Forest Management Plan.

The cause of impairment in the Gallatin River is dewatering, flow alteration, lead and metals with the probable sources being agriculture, crop-related sources, irrigated crop production, construction, highway/road/bridge construction, resource extraction, abandoned mining and natural sources. According to this report, the Gallatin River is fully supporting its agriculture beneficial use, but only partially supporting its industrial uses and not supporting its aquatic life support, cold-water fishery, drinking water supply and recreation beneficial uses.

The Montana Streamside Management Zone (SMZ) Law (MCA 77-5-301) and Rules regulate timber harvest activities that occur adjacent to streams, lakes and other bodies of water. This law prohibits or restricts timber harvest and associated activities within a predetermined SMZ buffer on either side of the stream. The width of this buffer varies from 50-100 feet, depending on the steepness of the slope and the class of the stream.

The Montana Stream Protection Act (MCA 87-5-501) regulates activities conducted by government agencies that may affect the bed or banks of any stream in Montana. This law provides a mechanism to require implementation of BMPs in association with stream bank and channel modifications carried out by governmental entities. Agencies are required to notify the Montana Department of Fish, Wildlife and Parks (MDFWP) of any construction projects that may modify the natural existing conditions of any stream.

Water Quality – Existing Conditions:

The greatest pollutant of concern within the proposed project area is sediment. Increased sediment delivery and deposition can affect water quality both physically and biologically as well as affecting channel stability and geomorphology. Increased and accelerated sediment delivery and deposition have impacted the streams within the analysis area. The primary sources of sediment delivery are roads, particularly at stream crossings and road segments adjacent to stream channels.

From the paved Highway 191, approximately 4.2 miles of county, private and State gravel road provide access to the proposed sale area. Existing improved gravel road to the State ownership is suitable for use as is. The more unimproved gravel roads located on the State are adequate for use with minor improvements improve and maintain proper drainage. No additional permanent road construction is expected to occur.

Other sources of sediment delivery to stream channels within the analysis area include streambank disturbance and channel instability induced by livestock grazing. These impacts are limited to the lower stream reaches and the agricultural segments along the valley floor.

In addition to past management activities, all the drainage's within the proposal area have been exposed to the recent Purdy Wildfire during September of 2001. The Purdy Wildfire consumed approximately 5,000 with ~ 200 of those acres occurring on State ownership. Effects from the fire cover a full range of burn intensities. Within State section 16, approximately 120 acres burned high to moderately high intensity and 80 acres burned moderate/low intensity.

Direct and Indirect Effects - Water Quality:

Erosion and sediment delivery are expected to have increased following this past spring runoff within the moderate and high severity burn areas located within the proposed project area. Additionally, these impacts (only at a lower degree) are expected to continue following summer and fall rainstorm events. Therefore, additional direct impacts to water quality and direct and indirect impacts to downstream beneficial uses are anticipated in all streams within the proposed project area. The amount of sediment delivery and subsequent impacts to water quality resulting from the recent wildfires are expected to be considerable. A sediment yield analysis completed by the nearby Fridley Fire Burned Area Emergency (BAER) Team estimated that post-fire sediment yields could increase as much as 120% of the pre-fire conditions. We expect runoff to be highest in the first 5 years following the fire while the sites revegetate. Severe thunderstorms could result in dramatically accelerated runoff and erosion. Sediment delivery would be expected to reduce substantially by the end of the 2003-growing season as vegetative recovery occurs (USFS BAER 2001).

Sediment delivery from existing open roads is also expected to be greater than in the recent past. This is due to increased road surface runoff and loss of stabilizing vegetation on road surfaces, cuts and fills. These road segments will continue to provide long-term sources of sediment delivery until additional improvements or restoration measures are implemented.

Other direct impacts to water quality are increased concentrations of nutrients. Concentrations of both phosphorus and nitrogen are expected to increase in streams draining severe burn areas. Many published studies have shown elevated levels of these nutrients immediately following wildfires and during subsequent spring runoff (Spencer and Hauer 1990, Salminen and Beschta 1991). The large increases in nutrients frequently observed immediately after fires appears to be the result of direct deposition of ash and subsequent rapid leaching of dissolved nutrient materials. Vegetative regrowth is expected to help reduce additional delivery from summer and fall rain events. This is due to the natural buffering and sediment trapping that occurs along vegetated surfaces versus bare soils.

Direct impacts to water quality also occurred in several of the affected streams during the wildfire due to elevated water temperatures. Fish mortality may have occurred on several of the nearby streams in the area, immediately following the wildfires. It is expected that lethal temperatures were obtained during stand-replacement burns. The lethal temperature threshold for juvenile salmonids has been identified under laboratory conditions at between 22 and 25 degrees centigrade (Beschta 1987). While the possibility of fish mortality exists, no evidence following the Purdy Fire suggests that fish kills occurred within the State ownership. Speculation could be made that it in fact, this occurred within the segments of streams exposed to stand-replacement burns. However, field observations within State ownership indicate that severe burn intensities occurred only the ridges, while the draws and stream bottoms burned much cooler.

Indirect impacts to water quality include increased summer maximum stream temperatures. Within the proposed project area only a minor number SMZ trees and shrubs were consumed in those very short stream reaches affected by stand replacement fire. Summer maximum stream temperatures are not expected to elevate due to the increased amount of direct solar radiation reaching the stream within the State ownership.

Areas that burned low to mixed severity may have some indirect effects on stream water temperatures. Because direct-beam solar radiation is the primary factor influencing temperature changes in the summer, the effect of partial canopy removal (burned by mixed severity fire) is directly proportional to the reduction in canopy providing shade to the stream (Beschta 1987).

Increased nutrients, increased stream temperatures and loss of tree canopy following the fire may also have indirect effects on water quality by contributing to increased periphyton algal growth (Beschta 1987 and Spencer 1990). Light availability often limits algal growth in heavy canopied mountain streams. However, the fire within the State ownership impacted very little streamside area. Therefore, increased levels of algal growth would not be expected to occur within the proposed project area.

Cumulative Watershed Effects:

Past management activities surrounding the proposed sale area include agriculture, grazing, fire suppression, road construction and timber harvest. Timber harvest activities in the analysis area have been minimal over the past 30 years, constituting selective harvest on State and adjacent private lands. Additionally, recently salvage harvest has occurred in the adjacent Sections 1, 35 & 2, constituting approximately 490 acres.

A cumulative watershed effects (CWE) analysis for the proposed sale area was completed by DNRC to determine the existing conditions of the affected watersheds and the potential for cumulative effects due to increased sediment yields. The Wilson Creek and Little Bear Creek watersheds were chosen as the analysis boundaries. These analysis areas were selected because they were determined to be the most appropriate scale to detect potential effects.

As outlined in the SFLMP Watershed RMS # 7, the CWE analysis was completed using a Level II coarse filter approach to determine the existing conditions of the proposed sale area. This Level II was used to determine cumulative effects from past management activities and effects from wildfire. The coarse filter approach consisted of on-site evaluation, mapping the percent forested of each watershed and documenting history of past activities through the use of maps, aerial photographs and harvest records.

All drainage features in the proposed sale watershed analysis area were inventoried and evaluated by a DNRC hydrologist. Impacts occurring are the result of poor road locations and design, trampling, bank shearing and soil erosion from cattle trails. The cattle impacts are moderate in extent, as they are confined to the lower reaches easily accessible to cattle.

All primary and secondary roads within the proposed sale area were evaluated for past or potential impacts. Field evaluations indicate that past management activities within the analysis area have resulted in impacts to water quality. These impacts are limited to sediment delivery and erosion from roads and cattle use and are restricted to stream crossings and isolated segments of existing roads.

Within the more extensive Purdy Fire analysis area, increases in peak flows, surface runoff, erosion and subsequent sediment delivery, nutrient levels and stream temperatures are anticipated following the recent wildfire. Measurable quantities of these impacts may vary across the fire area and would be dependent on the nature of the stream channels, intensity of burned area, local geology, and the timing, duration and intensity of snowmelt and spring rain events. Measurable impacts are more likely to occur in perennial drainage's where burn intensities are high.

In addition to the proposed State harvest, there are current salvage activities on private ownership within the Purdy Fire perimeter. This salvage includes harvesting of any merchantable trees killed or damaged by the recent wildfire. This activity falls within the Wilson Creek watershed. Increases in water yield are likely following this activity, depending on the amount of green tree harvest. The majority of the private harvest occurs within high severity burn areas where leaf area was completely lost.

Increases in erosion and sedimentation are also likely as a result of additional harvest on private lands. The levels of these impacts would be dependant on planning, rehabilitation efforts and the level of mitigation applied on site.

Cold Water Fisheries – Existing Conditions:

Population data was not available for either Wilson Creek or Little Bear Creek. However, personal communication with Pat Boyorth, Fisheries Biologist with the Montana Department of Fish, Wildlife & Parks (DFWP), indicated that a pure strain of westslope cutthroat trout existing in the West Fork of Wilson Creek. Input received from the Biologist did not indicate concern regarding the westslope cutthroat trout populations since the proposed project area is located entirely outside of the West Fork Wilson Creek.

Past management activities have resulted in increased sediment and a decrease in the riparian shrub component and recruitable trees for in-channel large woody debris along existing tributary stream channels. These impacts have occurred following grazing, agriculture and road building activities. It is likely that these impacts have resulted in loss of shade cover, bank stability, recruitable trees and increased sediment.

Direct and Indirect Effects - Cold Water Fisheries:

Substantial increases in stream water temperatures may have occurred in those reaches of stream channel subjected to severe burn intensities during the Purdy Fire. However, field review indicates that draws and stream bottoms within the State ownership were not subjected to severe burn intensities.

A direct effect of elevated water temperatures may have occurred during the fire, resulting in juvenile fish mortality. Lethal threshold temperatures for juvenile salmonids have been identified in laboratory conditions at between 22 and 25 degrees centigrade (Beschta 1987). Future indirect effects on stream water temperatures may occur from the loss of stream shading vegetation. Other existing indirect effects associated with fish habitat within the proposed project area include accelerated rates of erosion and subsequent sediment deposition, increased nutrient loading, increased channel instability, loss of stream bank vegetative cover and shade, resulting in increased stream temperatures.

Other potential indirect impacts to cold water fish habitat resulting from the recent wildfires is a reduction in large woody debris (LWD) available for recruitment into fish-bearing streams. The importance of LWD and its role in fish habitat and channel development has been described in recent literature (Bragg et al. 2000). Streamside areas that were subjected to high intensity burns are expected to provide LWD recruitment over the next few years. However, long-term recruitment is expected to be limited.

Cumulative Effects – Cold Water Fisheries:

Existing cumulative watershed effects that have resulted in increased sediment yields and contributed to channel instability have also degraded cold-water fisheries and their habitat. Sediment deposition from roads, riparian grazing and increased sediment delivery and nutrient loading resulting from the recent wildfire has occurred in stream channels

within the proposed project area. These impacts are expected to increase in the short-term and decline as hydrologic and vegetative recovery continues to occur.

ENVIRONMENTAL CONSEQUENCES

The proposed State timber sale is comprised of a no-action and action alternative. The prescription for the action alternative is to salvage log up to 60 acres of timber damaged or killed by wildfire. Up to 0.35 miles of temporary road or skid trail construction would be constructed and 0.10 of a mile of old road reconstructed to access a portion of the sale area.

Water Quality:

No Action Alternative:

Under the No Action Alternative, existing substandard roads with inadequate road surface drainage would continue to impact water quality and downstream beneficial uses unless mitigation and remedial actions are undertaken. Existing effects from the recent wildfire would continue to decline as natural recovery occurs.

Action Alternative:

Several changes to water quality are expected as a result of the recent Purdy Wildfire. Conceivably, areas with severe burn intensities would show increased levels of sediment, nutrients and temperature in local stream channels. In addition to minimizing impacts from the proposed harvest activities, mitigation measures will be implemented to also help minimize erosion associated with the recent wildfire.

Harvest units can directly impact water quality if not properly located or buffered. The risk of impacts is greatest along streams, wetlands and lakes. The Streamside Management Zone Law (SMZ Law) regulates forest management activities that occur adjacent to streams, lakes or other bodies of water. All proposed activities will be conducted in accordance with the SMZ law and Rules. All areas requiring SMZ delineation have been field reviewed by a DNRC Hydrologist to determine their adequacy in meeting the requirements of the law and satisfying the SFLMP guidance to protect water quality and aquatic resources. There is no SMZ harvest planned for this proposed activity.

Mitigation measures implemented during salvage operations are expected to minimize direct impacts to water quality resulting from the proposed salvage harvest. These measures are also expected to help reduce the effects from the recent wildfire. Mitigation and rehabilitation measures planned for the proposed harvest areas have been demonstrated to be effective in reducing erosion and sediment delivery to stream channels (Robicaud 2000 and Klock 1975). Mitigation measures include contoured log felling, installation of water bars on skid trails, seeding with grass and spreading of logging residue on disturbed areas for use as protective cover and mulch. Extended SMZ widths and defining slope skidding restrictions would also be utilized to provide additional protection and reduce soil disturbance on sensitive slopes.

Recent studies concluded that trees killed by wildfire and left standing could still provide substantial levels of shade to small mountain streams (Amaranthus 1988). There will be no harvesting adjacent to Wilson Creek. The burn intensities were not intense enough to suggest fire salvage below the existing road segment paralleling Wilson Creek. The existing road is the unit boundary.

Portions of the sale area are drained by ephemeral draws, swales and wet areas that lack discernable stream channels. Equipment restrictions and designated crossings will be utilized to protect all wet areas and ephemeral draws.

The primary risk to water quality is associated with roads, especially roads constructed along or crossing streams. Sediment delivery from existing roads is expected to increase over past levels as a result of the recent wildfire. This is largely due to increases in runoff from loss of leaf area and the loss of road cut and fills vegetation, which provided a stabilization mechanism. DNRC will utilize all reasonable mitigation and erosion control practices during any reconditioning or reconstruction of all roads, stream and draw crossings during the proposed activities. Site specific design recommendations from DNRC Hydrologist, Soil Scientist would be fully implemented under the action alternative. Approximately .35 miles of temporary road or skid trail construction would occur to access the portions of the proposed harvest areas. These temporary disturbances are not expected to impact water quality. This is due to BMP design, and the proposed construction locations are not near any perennial stream channels.

Up to 1.7 miles of existing low standard road would be improved under the action alternative to a standard that meets minimum BMPs. Under the DNRC proposal, these road segments will be improved to reduce erosion and delivery to the affected stream channels and draw bottoms. Improvements include, but are not limited to, installation and or reconstruction of road surface drainage features, stabilization of eroding cut and fill slopes and installation of sediment buffer structures i.e. slash filter windrows and/or filter fabric fencing with straw bales (depending on site location).

Cumulative Effects - Water Quality:

Proper application of BMPs and site-specific designs and mitigation measures will reduce erosion and potential water quality impacts to an acceptable level as defined by the water quality standards. Acceptable levels are defined under the Montana Water Quality Standards as those conditions occurring where all reasonable land, soil and water conservation practices have been applied.

The proposed harvest activities are not expected to increase sediment yield to stream channels. This is largely due to the location of the proposed harvest units along the landscape and mitigation designed to minimize erosion. Several studies suggest that increases in erosion and sediment yield associated with post-fire harvest are largely attributed to new road construction and use of ground based and cable yarding systems in areas having steep slopes and sensitive soils without the protection of snow cover or frozen soils (Klock 1975 and McIver 2000). Harvest operations would be conducted under dry or frozen conditions.

The proposed salvage harvest is not expected to increase water yield, surface runoff, or magnitude and duration of peak flows and consequently increased sediment delivery over those levels already expected due to the effects of the wildfire. Only a limited number of green trees within the clearing limits of the needed skid trail or temporary road access routes would be harvested. Within the proposed units, only trees dead or dying from the direct effects of the fire or bug kill would be salvaged.

Erosion control measures and other improvements to the existing road system are expected to result in long-term improvements to downstream water quality and improved protection of beneficial uses. There is little risk of measurable adverse impacts to downstream water quality and beneficial uses occurring as a result of the proposed action alternative. No activities associated with the Wilson Creek Salvage will occur adjacent to Wilson Creek.

Cumulative Watershed Effects:

No Action Alternative:

The No Action Alternative would maintain measurable cumulative effects from past management activities and recent wildfire effects, but would decline as hydrologic recovery continues to occur.

Action Alternative:

The proposed salvage will occur in stands of dead timber as a result of the recent wildfire. These trees are no longer capable of removing water from the soil profile through the evapotranspiration process and they no longer provide substantial green canopy critical for snow and rainfall interception. Therefore, an increase in water yield above existing post-fire conditions is not applicable.

No increases in water yield or the magnitude and duration of peak flows are anticipated in the analysis area as a result of the proposed salvage harvest. This is due to the fact that, primarily, only dead and dying trees will be harvested. Increases in sediment yield are expected to be negligible due area treated, location along the landscape, and mitigation designed to minimize erosion.

Cold Water Fisheries:

No Action Alternative:

The no action alternative would continue to impact cold water fisheries habitat through erosion and sedimentation due to existing road conditions and locations and the current grazing strategy.

Action Alternative:

Increased levels of sedimentation resulting from the wildfire are expected to have occurred and will continue to occur until vegetative recovery is complete. The largest "pulse" of sediment is expected to have already occurred following fall rain events and the recent spring runoff. Mitigation measures implemented during the proposed harvest operations are expected to reduce existing and potential sediment delivery and subsequent impacts to local fish-bearing streams. Due to planning, harvesting locations and additional mitigation measures, it is unlikely that the proposed timber sale will affect large woody debris recruitment, shade or in-stream temperature into downstream fish-bearing streams.

The proposed activity would not have SMZ harvest or any harvest west of the existing Wilson Creek road. This is expected to maximize existing stream shade and minimize the potential for increases in stream temperatures due to the removal of standing trees along the channels. Additionally, this would provide for maximum future potential large woody debris recruitment.

In conclusion, no additional impacts as a result of the proposed project are expected to effect stream temperatures and LWD recruitment.

Cumulative Effects – Cold Water Fisheries:

The action alternative includes improvements to mitigate problems associated with the existing road system. These improvements are expected to reduce the risk of additional impacts to fish-bearing streams during the proposed sale activities. In addition, these improvements would have a minor long-term positive influence on water quality and fisheries habitat in the watersheds draining the proposed sale area.

No additional impacts to cold water fisheries are anticipated as a result of the proposed project. Retention tree

requirements are expected increase the longer-term probability of standing trees which would provide for LWD recruitment and stream shade.

RECOMMENDED MITIGATION MEASURES

Operations conducted in or near draw features and on steeper slopes have a higher risk of impacting soil resources and water quality. The following recommended mitigation measures would help minimize risk of impacts during the proposed activities. These mitigation measures are standard practices that may be applied to all harvest activities associated with the proposed Wilson Creek Fire Salvage Timber Sale. Recommended site-specific, contract design mitigation will be provided in a separate document.

General Road Design and Mitigation Recommendations:

- Plan, design and improve existing road systems to meet long-term access needs and to fully comply with current BMPs.
- Construct drain dips, grade rolls and other drainage features where necessary and practical to insure adequate road surface drainage. **Install and maintain all road surface drainage concurrent with harvest activities, reconstruction and reconditioning.** Drain dips constructed on sustained road grades greater than 8% may require gravel surfacing to function properly. Sustained road grades greater than 10% may require installation of conveyor belt water diverters.
- Grass seed all newly constructed or reconstructed road or skid trail cut and fills immediately after excavation or upon closure of the road or trail.
- Leave all temporary or abandoned roads in a condition that will provide adequate drainage and will not require future maintenance. Partially obliterate abandoned roads through ripping and seeding. Where it is available, scatter slash across the ripped road surface. Install water bars at regular intervals to facilitate surface drainage.
- Filter outlets of all ditches with direct delivery to streams or ephemeral draws with slash or filter fabric and straw bales.
- Limit road use and hauling to dry, frozen or snow covered conditions. Suspend operations when these conditions are not met **before** rutting occurs.

General Design and Mitigation Recommendations for Harvest Units:

- Implement Forestry BMPs as the minimum standard for all operations with the proposed timber sale.
- Protect all ephemeral draws, springs and wet areas with marked equipment restriction zones (ERZ). If absolutely necessary, designate locations for skid trail crossings. Minimize number of crossings and space at 200 feet where feasible. This will minimize soil disturbance within the vicinity of the draws. Use designated crossings only under dry or frozen conditions.
- Develop a skidding plan prior to equipment operations. Skid trail planning would identify which main trails to use,

and what additional trails are needed. Trails that do not comply with BMPs (i.e. draw bottom trails) should not be used and closed with additional drainage installed where needed or grass seeded to stabilize the site and control erosion.

- Leave 5 – 10 tons per acre of coarse woody material larger than 3 inches in diameter scattered throughout the sale units, predominately perpendicular to the slope. The Forest Officer should determine the appropriate amount of material and should designate pieces that would otherwise be skidded to be left for this purpose. This may require return skidding.
- Seed skid trails over 30%. Scatter slash on skid trails where feasible.

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Wilson Creek Salvage

Ross Baty
Wildlife Biologist
April 30, 2002

CHECKLIST FOR ENDANGERED, THREATENED AND SENSITIVE SPECIES
Pertains to Section II. 9. of the DS-252 DNRC Environmental Checklist
CENTRAL LAND OFFICE

Threatened and Endangered Species	[Y/N] Potential Impacts and Mitigation Measures N = Not Present or No Impact is Likely to Occur Y = Impacts May Occur (Explain Below)
Bald Eagle (<i>Haliaeetus leucocephalus</i>) Habitat: late-successional forest <1 mile from open water	[N] Suitable nesting and foraging habitat does not occur within the project area or within portions of adjacent parcels that could be influenced by project-related activities. No direct, indirect or cumulative effects to bald eagles would be anticipated.
Gray Wolf (<i>Canis lupus</i>) Habitat: ample big game pops., security from human activity	[N] Transient use of the project area could occur, however, no known den sites occur on the project area or within one mile of the project area (J. Fontaine, USFWS, 4/30/02). Due to the limited size, duration and location of the proposed activities, there would be low potential for direct, indirect or cumulative effects to gray wolves.
Grizzly Bear (<i>Ursus arctos</i>) Habitat: recovery areas, security from human activity	[N] The project area lies 16 miles north of the Yellowstone Grizzly Bear Recovery Zone. Transient use of the project area could occur. However, due to the limited size, duration, location of the proposed activities, and incorporation of temporary roads in the proposed project design, there would be low potential for measurable direct, indirect or cumulative effects to grizzly bears.
Canada Lynx (<i>Felis lynx</i>) Habitat: mosaics—dense sapling and old forest >5,000 ft. elev.	[N] Preferred lynx habitat types do not occur in the project area, thus, it is unlikely that lynx would use the area appreciably. Some transient use of the project area is possible, however, measurable direct, indirect or cumulative effects would not be anticipated to result from proposed activities.
DNRC Sensitive Species	[Y/N] Potential Impacts and Mitigation Measures N = Not Present or No Impact is Likely to Occur Y = Impacts May Occur (Explain Below)
	[N] Habitat suitable for use by flammulated owls

<p>Flammulated Owl (<i>Otus flammeolus</i>) Habitat: late-successional ponderosa pine and Doug.-fir forest</p>	<p>does not occur in the project area, thus, no direct, indirect or cumulative effects would be anticipated.</p>
<p>Boreal Owl (<i>Aegolius funereus</i>) Habitat: mature to late-successional forest >5,200 ft. elev.</p>	<p>[N] Habitats and elevations used by boreal owls occur within the project area, however, proposed activities would not be expected to alter any usable existing habitat, or create disturbance that would be expected to measurably influence nesting pairs, should they occur in the vicinity. Thus, direct, indirect or cumulative effects to boreal owls would not be expected.</p>
<p>Black-Backed Woodpecker (<i>Picoides arcticus</i>) Habitat: mature to old burned or beetle-infested forest</p>	<p>[Y] Habitat suitable for use by black-backed woodpeckers occurs in the project area and would be treated under the Action Alternative (ie., up to 60 acres). Habitat is also present in portions of the 5,000 acres associated with the Purdy Fire-2001 and within 140 acres of burned forest that would remain on the project area post treatment. As such the proposed project would reduce by a small proportion, the available habitat suitable for use by black-backs at the landscape scale. Thus, the project would result in minor, indirect and cumulative adverse effects to black-backed woodpeckers. Anticipated effects would likely not be measurable at the scale of the 5,000-acre burn complex.</p>
<p>Pileated Woodpecker (<i>Dryocopus pileatus</i>) Habitat: late-successional ponderosa pine and larch-fir forest</p>	<p>[N] The project area occurs outside of the normal breeding range of pileated woodpeckers. Thus, direct, indirect or cumulative effects would not be anticipated to result from proposed activities.</p>
<p>Northern Bog Lemming (<i>Synaptomys borealis</i>) Habitat: sphagnum meadows, bogs, fens with thick moss mats</p>	<p>[N] Sphagnum meadows, bogs and fens with thick moss mats do not occur in the project area. Thus, direct, indirect or cumulative effects would not be anticipated to result from proposed activities.</p>
<p>Harlequin Duck (<i>Histrionicus histrionicus</i>) Habitat: white-water streams, boulder and cobble substrates</p>	<p>[N] Streams or rivers suitable for use by harlequin ducks do not occur in the project area, thus, direct, indirect or cumulative effects to harlequin ducks would not be expected.</p>
<p>Ferruginous Hawk (<i>Buteo regalis</i>) Habitat: prairies and badlands</p>	<p>[N] Grassland and badland habitats suitable for use by ferruginous hawks do not occur in the project area, thus, direct, indirect or cumulative effects to ferruginous hawks would not be expected.</p>
<p>Peregrine Falcon (<i>Falco peregrinus</i>) Habitat: cliff features near open foraging areas and/or wetlands</p>	<p>[N] Cliff features suitable for use by nesting peregrine falcons do not occur in, or within 1/2 mile of the project area. Thus, direct, indirect or cumulative effects would not be expected.</p>
<p>Mountain Plover (<i>Charadrius montanus</i>) Habitat: short-grass prairie, alkaline flats, prairie dog towns</p>	<p>[N] Grassland habitats suitable for use by mountain plovers do not occur in the project area, thus, direct, indirect or cumulative effects to</p>

	mountain plovers would not be expected.
Townsend's Big-Eared Bat (<i>Plecotus townsendii</i>) Habitat: caves, caverns, old mines	[N] No caves, or old mines suitable for use by Townsend's big-eared bats occur in the project area or within portions of adjacent parcels that could be influenced by project-related activities. Thus, direct, indirect or cumulative effects to Townsend's big-eared bats would not be expected.

May 6, 2002

552

TO: CURT TESMER, Forester, Bozeman Unit
JIM KALITOWSKI, Unit Supervisor, Bozeman Unit
GARRY WILLIAMS, Area Manager, Central Land Office
GARY FRANK, State Land Management Section

FROM: JEFF COLLINS, Soil Scientist, DNRC

SUBJECT: Wilson Creek Salvage Timber Sale Soils Review
S ½ Section 36, T3S, R4E

EXISTING ENVIRONMENT

1.) Geology & terrain

The sale area is located on moderate to steep slopes at the base of the foothills of the Gallatin Range. Parent materials are mainly limestone and shale which weather to cobbly clay loam soils on the mountain sideslopes and rocky residual soils on the ridges. Deep alluvial deposits of silts and clays occur on the draw bottoms, and grassland footslopes. There are no unusual geologic features in the sale area. There are localized spots of marginal slope stability within the general area that require careful location of roads and harvest units. Harvest units are located to avoid areas of marginal slope instability. Rock outcrops and fractured bedrock occur along ridgelines

2.) Soils

Primary soils within the harvest area are a complex of Whitore gravelly clay loams and Sickleteers cobbly clay loams on moderate slopes of 20 to 45% with a few steep pitches over 45%. Whitore soils have more fractured gravels developed from fractured limestone forming on mountain hillsides. Sickleteers soils have higher clay contents and more commonly occur in concave slopes and draws. Surface soils are typically 8-12" depth gravelly silt loams. Erosion hazard is moderate to high, increasing with slope and area where the soil duff was burned. Erosion can be controlled with standard drainage features. These soils are subject to deep rutting and compaction if operated on when wet. Season of use is limited to frozen ground or dry summer months because soils tend to remain wet until late in the spring (typically June). These soils are adequately suited to tractor operations.

Ridges and the steeper sideslopes have shallower soils of loams over gravelly and cobbly silty clay loams and fractured rock, are more droughty and have a longer season of use. Slopes over 40% have a higher risk of displacement.

Environmental Effects of No Action Alternative

The No-Action alternative would have some potential direct and indirect effects on soil resources associated with the fire. Direct effects of the fire are varying levels of loss of vegetative cover, surface duff in severe burn, coarse woody debris on the soil surface and heat altered soils. The indirect effect is increased soil erosion related to burn severity and increased runoff associated with the moderately hydrophobic (water repellent) soils within the State section until ameliorated.

With No-action alternative we expect erosion to increase the first year after fire and slowly stabilize as native vegetation reoccupies the site. Summer thunderstorms present the highest risk of short term erosion. Existing roads with inadequate drainage would continue to erode without maintenance. There is some risk of shallow slope instability on some areas with increased soil moisture associated with the burned loss of trees, and depending on seismic activity. Roads with poor drainage would be at higher risk of localized instability.

Cumulative Effects of No Action

No-action would have some limited effect of continued erosion. Without the salvage operations there could be some cumulative effects over time that adequate Forest Improvement funds may not be available to complete periodic road maintenance, erosion control and weed control efforts. Funds from salvage operations provide funds for periodic maintenance and repairs.

Effects of the Action Alternative

For the Action Alternative we evaluate the effects of timber harvest and expect that fire effects would be similar to the no-action alternative. Effects of tractor skidding harvest could cause direct effect of soil disturbance that could result in increased erosion. Natural rates of erosion will be high, but we expect erosion would not be substantially more than severe burned areas not planned for harvest, based on implementation of attached mitigation measures. During sale development, DNRC was very concerned about the effects of the fire on soils, loss of vegetation and design of harvest systems relative to terrain and slope. Harvest units are designed to avoid ground skidding on small areas of marginal stability.

For the action alternative, specific mitigations and BMP's would be implemented to minimize the area and degree of soil effects associated with proposed harvest. Mitigations include skid trail planning, limit tractors to slopes less than 35%, placing drainage and woody debris on trails to control erosion. The most sensitive soils are found on wet sites and steep slopes in the severe burn areas, which will be avoided or protected with site specific mitigation measures. Ground effects of harvest operations will be closely monitored. Placing coarse woody debris and broken tops on slopes can have some immediate benefit to slow surface water runoff and reduce erosion as observed on other fires (Sula 2000).

We do not expect any significant soils impacts if action alternative will implement BMP'S and site specific mitigation measures to protect soil and water resources. Portions of existing roads that have inadequate drainage and do not comply with BMP's will be repaired to improve drainage and control erosion. New temporary roads or skid trails are short in length (two segments totaling .35 of a mile), involve minimal excavation and would be stabilized and revegetated after use.

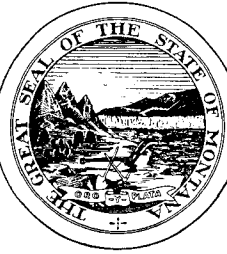
Cumulative Effects

No previous harvest units would be reentered, and there is low risk of cumulative effects based on the mitigation planned (see mitigation measures) that would minimize the area of detrimental soil impacts. As part of salvage rehab treatments, roads would have adequate drainage installed and revegetated to control erosion on roads will help reduce erosion and help disperse runoff from roads. Coarse woody debris will be retained to help reduce erosion within harvest units, and maintain nutrient cycling for long term productivity.

MITIGATION MEASURES FOR ACTION ALTERNATIVE:

- * Limit equipment operations to periods when soils are relatively dry (less than 20%) to minimize soil compaction and rutting, and maintain drainage features. Check soil moisture conditions prior to equipment start-up.
- * The logger and sale administrator will agree to a general skidding plan prior to equipment operations. Designate landing sites and skid trails to avoid short steep slopes and small slumps.
- * Retain 5-10 tons/acre coarse woody debris in harvest units as feasible for nutrient cycling and long-term productivity. Where woody debris is less than 5 tons/acre, in woods processing, return skid or other options may be required to achieve well distributed woody debris.

DEPARTMENT OF NATURAL
RESOURCES AND CONSERVATION



JUDY MARTZ
GOVERNOR

DIRECTOR'S OFFICE (406) 444-2074
TELEFAX NUMBER (406) 444-2684

STATE OF MONTANA

WATER RESOURCES DIVISION (406) 444-6601
TELEFAX NUMBERS (406) 444-0533 / (406) 444-5918

48 NORTH LAST CHANCE GULCH
PO BOX 201601
HELENA, MONTANA 59620-1601

Cover Letter

August 9 2002

TO: Governor's Office, Barbara Ranf, Rm. 204, State Capitol, P.O. Box 200801, Helena, MT 59620-0801
Environmental Quality Council, Capitol Building, Room 106, P.O. Box 201704, Helena, MT 59620
Dept. of Environmental Quality, Metcalf Building, P.O. Box 200901, Helena, MT 59620-0901
Director's Office
Dept. of Natural Resources and Conservation, US F&G Bldg. 1625 11th Ave. Helena, MT 59620
Director's Office
Information Services Section
Water Resources Division, 48 N. Last Chance Gulch, P.O. Box 201601, Helena, MT 59620-1601
Montana Fish, Wildlife & Parks, 1420 E. 6th Ave. Helena, MT 59620
Director's Office
FWP Region 2 Office, 3201 Spurgin Road, Missoula, MT 59804
Wayne Hadley, MT Dept. of Fish, Wildlife & Parks, P.O. Box 1, Deer Lodge, MT 59722
MT Historical Society, State Historic Preservation Office, P.O. Box 201202 Helena, MT 59620-1202
MT State Library, 1515 E. Sixth Ave., P.O. Box 201800, Helena, MT 59620
Montana Environmental Information Center, P.O. Box 1184, Helena, MT 59624
Montana Audubon Council, P.O. Box 595, Helena, MT 59624
Ed Lord, Flint Creek Water Users Association, Box 4796 Skalkaho Rd., Philipsburg, MT 59858
Granite County Commissioners, P.O. Box 929, Philipsburg, MT 59858-0925
Northern Plains Resource Council, 2401 Montana Ave. Suite 200, Billings, MT 59101-2336
U.S. Army Corps of Engineers, 301 S. Park Ave. Drawer 10014, Helena, MT 59626-0014
U.S. Fish & Wildlife Service, MT Field Office, 100 N. Park Ave. Helena, MT 59601
Wildlife Federation, P.O. Box 1175, Helena, MT 59624
Trout Unlimited, P.O. Box 7186, Missoula, MT 59807

Ladies and Gentlemen:

The enclosed Environmental Assessment (EA) has been prepared for the Marshall Canal Siphon Replacement Project and is submitted for your consideration. Please feel free to contact me at (406) 444-6622 (e-mail jdomino@state.mt.us) should you have any questions or comments. Comments will be accepted until 5:00 p.m., September 9 2002. Comments can also be mailed to: MT Dept. of Natural Resources and Conservation, State Water Projects Bureau, 48 N. Last Chance Gulch, P.O. Box 201601, Helena, MT 59620-1601, attn. James P. Domino. Copies of the EA are available upon request. The EA can also be viewed on the DNRC website at www.dnrc.state.mt.us Thank you.

Sincerely,

James P. Domino

James P. Domino
Environmental Specialist
State Water Projects Bureau

STATE WATER PROJECTS
BUREAU
(406) 444-6646

WATER MANAGEMENT
BUREAU
(406) 444-6637

WATER OPERATIONS
BUREAU
(406) 444-0860

WATER RIGHTS
BUREAU
(406) 444-6610

DRAFT ENVIRONMENTAL ASSESSMENT MEPA CHECKLIST

Part I. Proposed Action Description

1. Type of Proposed State Action
2. Agency Authority for the Proposed Action

Owner: MT Dept. of Natural Resources and Conservation; Sec. 85-1-210, 85-1-211, 85-6-109 (5) (1997) MCA.

3. Name of Project Marshall Canal Siphon Replacement
4. Name, Address and Phone Number of Project Sponsor (if other than the agency)

MT. Dept. of Natural Resources & Conservation, 48 N. Last Chance Gulch, P.O. Box 201601, Helena,
MT 59620 – 1601 (406) 444-6646

5. If Applicable: Estimated Construction/Commencement Date September 30, 2002
 Estimated Completion Date April 30, 2003
 Current Status of Project Design (% complete) N/A %

6. Location Affected by Proposed Action (county, range and township)

Granite County – Township 6N, Range 14W, NW ¼, NW ¼, Section 10

7. Project Size: Estimate the number of acres that would be directly affected that are currently:

(a)	Developed:	(c)	Floodplain.....	<u>acres.</u>
	Residential			<u>acres</u>
	Industrial	(d)	Productive:	
	Open Space/		Irrigated cropland	<u>acres</u>
	Woodlands /		Dry cropland	<u>acres</u>
	Recreation.....		Forestry	<u>acres</u>
			X Rangeland.....	<u>2 acres</u>
(b)	Wetlands/Riparian	(e)	Other:.....	<u>acres</u>
	Areas			<u>acres</u>

8. Map/site plan: attach an original 8 1/2" x 11" or larger section of the most recent USGS 7.5' series topographic map showing the location and boundaries of the area that would be affected by the proposed action. A different map scale may be substituted if more appropriate or if required by agency rule. If available, a site plan should also be attached.

Map and project drawings attached.

9. Narrative Summary of the Proposed Action or Project including the Benefits and Purpose of the Proposed Action.

The Marshall Canal is a component of the Flint Creek Water Project and is being proposed for eventual transfer to the Flint Creek Water Users Association. The siphon is located in Granite County, T6N, R 14W, NW ¼, NW ¼ of section 10. It consists of an underground 36" steel pipe, approximately 550 feet in length. The siphon connects two portions of the canal through a small valley that is bisected by a small, spring fed intermittent stream. The siphon was constructed in 1939 as part of the Flint Creek Water Project. It was placed to eliminate the need to construct the canal channel through the upper part of the valley. The Marshall Canal and siphon are owned by the DNRC. The surrounding lands are privately owned. The DNRC possesses an easement for access to the canal and siphon.

The Marshall Creek Siphon is approaching imminent failure. The pipe is severely corroded along its length. The siphon burst on May 22 of this year, which necessitated the shutdown of the irrigation-canal system for the west side of the Philipsburg Valley. The emergency repair involved exposing the siphon and welding a steel-plate patch, measuring 6" X 24"x1/4", along the bottom of the pipe. Upon inspection of the siphon, it was revealed that 75% of the interior surface was deeply pitted with rust and that the combined forces of corrosion and scouring have abraded the pipe wall at the invert to an unacceptable thickness of one-sixteenth of an inch. The repair was only an expedient measure taken to return the siphon into service for the current irrigation season. DNRC engineering staff has been evaluating different alternatives for the replacement of the siphon. The project will most likely require the excavation and removal of the old steel pipe, and the installation and backfilling of a new 3' X 550' piping system. The original concrete inlet and outlet structures would be utilized. A coated steel pipe with galvanic corrosion protection, plastic pipe, PCV pipe, concrete pipe, and fiberglass pipe are various options available for the replacement alternative. The costs for these systems is similar, i.e., approximately \$100,000 to \$120,000. It is anticipated that the new pipe would have a service life of 75 to 100 years, depending on the material used. The disturbed area for the excavation alternatives would extend along the length of the pipe and about three feet on either side. An existing gravel road would be used to access the work site. A tracked excavator and backhoe will be used for the project. Any disturbed areas would be reclaimed and reseeded upon completion of the project. The irrigation canal would not be operational during the project.

A second alternative to replacing the siphon would be to repair the existing steel pipe with installation of a plastic liner. This option would be more expensive, about \$165,000, and have an anticipated service life of less than 20 years. This option would involve less on-site physical disturbance.

10. Listing of any other Local, State or Federal agency that has overlapping or additional jurisdiction.

(a) Permits:

<u>Agency Name</u>	<u>Permit</u>	<u>Date Filed/#</u>
MT Dept. of Fish, Wildlife & Parks	124-Permit	Pending
MT Dept. of Environmental Quality	318- Authorization	Pending
MT State Historic Preservation Office	Cultural Clearance	Clearance obtained 7/25/02
U.S. Army Corps of Engineers	404-Permit	Pending

10. (Continued)

(b) Funding:

<u>Agency Name</u>	<u>Funding Amount</u>
DNRC Emergency Repair Account	\$100,000 - \$120,000 (replacement) \$165,000 (liner)

(c) Other Overlapping or Additional Jurisdictional Responsibilities:

<u>Agency Name</u>	<u>Type of Responsibility</u>
N/A	

11. List of Agencies Consulted during Preparation of the EA:

Montana Department of Fish, Wildlife and Parks
Montana Department of Environmental Quality
MT State Library, Natural Resources Information System
MT State Historic Preservation Office
U.S. Army Corps of Engineers

Part II. Environmental Checklist Review

1. PHYSICAL ENVIRONMENT

	<u>IMPACTS</u>					Comment Index
	Unknown *	No Significant Impacts	Minor Impacts*	Potentially Significant Impacts*	Can Impacts be Mitigated*	
1. <u>LAND RESOURCES</u> Will the proposed action result in: a. Soil instability or changes in geologic substructure? b. Disruption, displacement, erosion, compaction, moisture loss, or over-covering of soil which would reduce productivity or fertility? c. Destruction, covering or modification of any unique geologic or physical features? d. Changes in siltation, deposition or erosion patterns that may modify the channel of a river or stream or the bed or shore of a lake? e. Exposure of people or property to earthquakes, landslides, ground failure, or other natural hazard? f. Other: _____		X				
			X		See comment 1b.	1.b
		X				
		X				
		X				

1b) Minor, short-term impacts would occur to the over covering of soil with the replacement alternative. Approximately 2 acres of ground would be disturbed by the excavation of the pipe. Little or no ground disturbance would occur with the liner alternative. All disturbed areas would be reclaimed and reseeded upon completion of the project. No long-term or significant impacts are anticipated with either the replacement or liner alternatives.

**PHYSICAL
ENVIRONMENT
(Continued)**

IMPACTS

	Unknown*	No Significant Impacts	Minor Impacts*	Potentially Significant Impacts*	Can Impacts be Mitigated*	Comment Index
2. AIR						
Will the proposed action result in:						
a. Emission of air pollutants or deterioration of ambient air quality?			X			2a
b. Creation of objectionable odors?			X			2b
c. Alteration of air movement, moisture, or temperature patterns or any change in climate, either locally or regionally?		X				
d. Adverse effects on vegetation, including crops, due to increased emissions of pollutants?		X				
e. Other: _____						

2 a&b) During construction, equipment emissions would contain some pollutants. Because of the rural location of this site, these emissions should not impact adjacent property owners. The impacts would be short-term and end upon completion of the project.

**PHYSICAL
ENVIRONMENT**

IMPACTS

	Unknown*	No Significant Impacts	Minor Impacts*	Potentially Significant Impacts*	Can Impacts be Mitigated*	Comment Index
<p>3. <u>WATER</u></p> <p>Will the proposed action result in:</p> <p>a. Discharge into surface water or any alteration of surface water quality including but not limited to temperature, dissolved oxygen or turbidity?</p> <p>b. Changes in drainage patterns or the rate and amount of surface runoff?</p> <p>c. Alteration of the course or magnitude of flood water or other flows?</p> <p>d. Changes in the amount of surface water in any water body or creation of a new water body?</p> <p>e. Exposure of people or property to water related hazards such as flooding?</p> <p>f. Changes in the quality of groundwater?</p> <p>g. Changes in the quantity of groundwater?</p> <p>h. Increase in the risk of contamination of surface or groundwater?</p> <p>i. Violation of the Montana Non-Degradation Statute?</p> <p>j. Effects on any existing water right or reservation?</p> <p>k. Effects on other water users as a result of any alteration in surface or groundwater quality?</p> <p>l. Effects on other users as a result of any alteration in surface or groundwater quantity?</p>		<p>X</p> <p>X</p> <p>X</p> <p>X</p> <p>X</p> <p>X</p> <p>X</p> <p>X</p> <p>X</p> <p>X</p> <p>X</p>				<p>3a.</p> <p>3j.</p> <p>3k.</p>

3a. The siphon runs through a small valley that is bisected by a small intermittent spring fed creek. This unnamed creek usually stops flowing, normally by the end of the summer, in an average precipitation year. It is anticipated that the replacement or liner alternatives would not result in any significant impacts to surface water.

3k&J. The canal is normally shut down by the end of September and would be inoperable during the proposed construction, resulting in no impacts to water rights or water users.

**PHYSICAL
ENVIRONMENT
(Continued)**

IMPACTS

	Unknown*	No Significant Impacts	Minor Impacts*	Potentially Significant Impacts*	Can Impacts be mitigated*	Comment Index
4. <u>VEGETATION</u>						
Will the proposed action result in:						
a. Changes in the diversity, productivity or abundance of plant species (including trees, shrubs, grass, crops, and aquatic plants)?			X			4a
b. Alteration of a plant community?		X				
c. Adverse effects on any unique, rare, threatened, or endangered plant species?		X				4c
d. Reduction in acreage or productivity of any agricultural land?		X				
e. Establishment or spread of noxious weeds?			X			4e
f. Other: _____						

4a) Approximately two acres of ground cover vegetation would be disturbed, consisting of mostly sage and native grasses with the replacement alternative. Little or no vegetative cover would be disturbed with the liner alternative. Any areas disturbed would be reclaimed and reseeded using native seed stock.

4c.) A file search on plant species of special concern was conducted by the Natural Resources Information System of the Montana State Library. No threatened, endangered or listed plant species of special concern are known to exist in the project area. Montana Fish, Wildlife and Parks (DFWP) and the U.S Fish & Wildlife Service (FWS) will also have the opportunity to comment on the proposed action. Any comments or recommendations received from the DFWP and/or the FWS will be incorporated into the Final EA and Notice of Decision.

4e) The ground disturbance associated with the replacement alternative would increase the potential for weeds to be established. The potential for weed proliferation would be less under the liner alternative. Weed control measures would be implemented by the Water Users as part of the project. No significant, long-term impacts are anticipated.

**PHYSICAL
ENVIRONMENT
(Continued)**

IMPACTS

Unknown*	No Significant Impacts	Minor Impacts*	Potentially Significant Impacts*	Can Impacts be Mitigated*	Comment Index
5. <u>FISH/WILDLIFE</u>					
Will the proposed action result in:					
a. Deterioration of critical fish or wildlife habitat?	X				5a
b. Changes in the diversity or abundance of game animals or bird species?	X				
c. Changes in the diversity or abundance of nongame species?	X				
d. Introduction of new species into an area?	X				
e. Creation of a barrier to the migration or movement of animals?	X				
f. Adverse effects on any unique, rare, threatened, or endangered species?	X				5f.
g. Increase in conditions that stress wildlife populations or limit abundance (including harassment, legal or illegal harvest or other human activity)?	X				
h. Impacts to any wetlands?	X				5h.
i. Other					

5a&f) A file search on animal species of special concern was conducted by the Natural Resources Information System of the Montana State Library. No threatened, endangered or listed animal species of special concern are known to exist in the immediate project area. Flint Creek (located approximately 1/2 mile east of the siphon) and Trout Creek (located approximately 1 mile south of the siphon) are designated as bull trout habitat. Montana Fish, Wildlife and Parks (DFWP) and the U.S Fish & Wildlife Service (FWS) will be consulted to identify any potential impacts to bull trout. Comments, recommendations and/or mitigation proposals received from the DFWP and/or the FWS will be incorporated into the Final EA and Notice of Decision. It is not anticipated that any of the proposed action alternatives would impact bull trout due to the proximity of the siphon to the listed bull trout streams, and the intermittent nature of the stream where the siphon is located. The no action alternative could result in potential impacts downstream should the siphon fail due to the potential for sedimentation and siltation from flooding.

5h.) The intermittent stream channel in the immediate vicinity of the canal would be impacted by the replacement alternative due to the excavation and backfilling. Little or no disturbance is associated with the liner option. It is not anticipated that any long-term significant impacts to existing or potential wetlands would occur due to the small areas of disturbance and the reclamation and reseeding of all disturbed areas. The U.S. Army Corps of Engineers would be consulted as part of the 404-Permitting process.

2. HUMAN ENVIRONMENT

IMPACTS

	Unknown*	No Significant Impacts	Minor Impacts*	Potentially Significant Impacts*	Can Impacts be Mitigated*	Comment Index
6. <u>NOISE/ELECTRICAL EFFECTS</u>						
Will the proposed action result in:						
a. Increases in existing noise levels?			X		See comment 6a.	6a
b. Exposure of people to severe or nuisance noise levels?		X				
c. Creation of electrostatic or electromagnetic effects that could be detrimental to human health or property?		X				
d. Interference with radio or television reception and operation?		X				
e. Other: _____						

6a) During construction, noise levels would temporarily increase from equipment operations. Because of the rural location of this site, this should not impact adjacent property owners. The impacts would be short-term and end upon completion of the project.

HUMAN ENVIRONMENT**(Continued)****IMPACTS**

	Unknown*	No Significant Impacts	Minor Impacts*	Potentially Significant Impacts*	Can Impacts be Mitigated*	Comment Index
7. LAND USE						
Will the proposed action result in:						
a. Alteration of or interference with the productivity or profitability of the existing land use of an area?				X	See comment 7a.	7a.
b. Conflict with a designated natural area or area of unusual scientific or educational importance?		X				
c. Conflict with any existing land use whose presence would constrain or potentially prohibit the proposed action?		X				
d. Adverse effects on or relocation of residences?		X				
e. Increase regulatory restrictions on private property rights?		X				
f. Other: _____						

7a.) Under the no action alternative, the productivity and profitability of the existing agricultural lands served by the Marshal Canal could be severely impacted should the siphon fail.

HUMAN ENVIRONMENT
(Continued)

IMPACTS

	Unknown*	No Significant Impacts	Minor Impacts*	Potentially Significant Impacts*	Can Impacts be Mitigated*	Comment Index
<p>8. <u>RISK/HEALTH HAZARDS</u></p> <p>Will the proposed action result in:</p> <p>a. Risk of an explosion or release of hazardous substances (including but not limited to oil, pesticides, chemicals, or radiation) in the event of an accident or other forms of disruption?</p> <p>b. Affect an existing emergency response or emergency evacuation plan or create a need for a new plan?</p> <p>c. Creation of any human health hazard or potential hazard?</p> <p>d. Other: _____</p>		<p>X</p> <p>X</p> <p>X</p>				

HUMAN ENVIRONMENT
(Continued)

IMPACTS

	Unknown*	No Significant Impacts	Minor Impacts*	Potentially Significant Impacts*	Can Impacts be Mitigated*	Comment Index
9. <u>COMMUNITY IMPACTS</u>						
Will the proposed action result in:						
a. Alteration of the location, distribution, density, or growth rate of the human population of an area?		X				
b. Alteration of the social structure of a community?		X				
c. Alteration of the level or distribution of employment or community or personal income?				X	See comment 9c.	9c.
d. Changes in industrial or commercial activity?				X	See comment 9d.	9d.
e. Increased traffic hazards or effects on existing transportation facilities or patterns of movement of people and goods?		X				
f. Other: _____						

9c&d) The community and personal income levels and commercial activity could be seriously impacted should the siphon fail under the no action alternative, due to the possibility that farms and ranches dependent on the Marshall Canal for irrigation and stock watering could go out of business.

HUMAN ENVIRONMENT
(Continued)

IMPACTS

Unknown*	No Significant Impacts	Minor Impacts*	Potentially Significant Impacts*	Can Impacts be Mitigated*	Comment Index
<p>10. <u>PUBLIC SERVICES/ TAXES/UTILITIES</u></p> <p>Will the proposed action:</p> <p>a. Have an effect upon or result in a need for new or altered governmental services in any of the following areas: fire or police protection, schools, parks/recreational facilities, roads or other public maintenance, water supply, sewer or septic systems, solid waste disposal, health, or other governmental services? If any, specify:</p> <p>b. Have an effect upon the local or state tax base and revenues?</p> <p>c. Result in a need for new facilities or substantial alterations of any of the following utilities: electric power, natural gas, other fuel supply or distribution systems, or communications?</p> <p>d. Result in increased use of any energy source?</p> <p>e. Other: _____</p>	X				
		X		See 10b. comment	10b.
	X				
	X				

10b. The no action alternative could result in the possible delay of the proposed transfer of this project, resulting in continued State liability for the property and the need for administrative oversight.

HUMAN ENVIRONMENT
(Continued)

IMPACTS

11. AESTHETICS/
RECREATION

Will the proposed action result in:

a. Alteration of any scenic vista or creation of an aesthetically offensive site or effect that is open to public view?

b. Alteration of the aesthetic character of a community or neighborhood?

c. Alteration of the quality or quantity of recreational opportunities and settings?

d. Other: _____

Unknown*	No Significant Impacts	Minor Impacts*	Potentially Significant Impacts*	Can Impacts be Mitigated*	Comment Index
	X				
	X				
	X				

IMPACTS

HUMAN ENVIRONMENT
(Continued)

	Unknown*	No Significant Impacts	Minor Impacts*	Potentially Significant Impacts*	Can Impacts be Mitigated*	Comment Index
12. <u>CULTURAL/ HISTORICAL RESOURCES</u>						
Will the proposed action result in:						
a. Destruction or alteration of any site, structure or object of prehistoric, historic, or paleontological importance?		X				12a
b. Physical change that would affect unique cultural values?		X				12b
c. Effects on existing religious or sacred uses of a site or area?		X				12c
d. Other: _____						

12 a, b & c) An assessment on potential impacts to cultural resources was completed by the State Historic Preservation Office (SHPO). The SHPO review indicated a low likelihood of impacts to cultural or historic resources.

**3. SIGNIFICANCE
CRITERIA**

IMPACTS

**13. SUMMARY
EVALUATION OF
SIGNIFICANCE**

Will the proposed action,
considered as a whole:

a. Have impacts that are
individually limited, but
cumulatively
considerable? (A project or
program may result in
impacts on two or more
separate resources which
create a significant effect
when considered together
or in total.)

b. Involve potential risks or
adverse effects which are
uncertain but extremely
hazardous if they were to
occur?

c. Potentially conflict with
the substantive
requirements of any local,
state, or federal law,
regulation, standard or
formal plan?

d. Establish a precedent or
likelihood that future
actions with significant
environmental impacts will
be proposed?

e. Generate substantial
debate or controversy
about the nature of the
impacts that would be
created?

f. Other: _____

Unknown*	No Significant Impacts	Minor Impacts*	Potentially Significant Impacts*	Can Impacts be Mitigated*	Comment Index
	X				
	X				
	X				
	X				
	X				

Part III. Alternatives and Evaluation

1. Description and analysis of reasonable alternatives (including the no action alternative) to the proposed action whenever alternatives are reasonably available and prudent to consider and a discussion of how the alternatives would be implemented. Also, identify the preferred alternative and provide justification for its selection:

- A. No action - The ability of the Marshall Canal to deliver irrigation water would be negatively impacted should the siphon fail, resulting in potentially severe economic impacts to farmers and ranchers and to the commercial activity and personal income levels in the area. There could also be a negative effect to the regional economy, which is heavily dependent on agriculture. Downstream water quality could also be negatively impacted due to sedimentation, siltation and flooding should the siphon fail. The no action alternative would also result in the possible delay of the proposed transfer of this project, resulting in continued State liability for the property and administrative oversight.
- B. Proceed as planned with the project – Replacement Option. This will have the beneficial effects of allowing for the continued provision of irrigation water through the canal, thereby maintaining the area's economy, which is heavily dependent on agricultural, and eliminating the State's liability and administrative oversight of the property by allowing the proposed transfer to proceed. The replacement option is less costly (\$100,000 - \$120,000 compared to \$165,000 for a liner) and will provide a much longer-term solution (75 to 100 years). The impacts associated with the replacement option from the increased disturbance are short-term, minor and/or non-significant.
- C. Proceed as planned with the project – Liner Option. This option involves little or no ground disturbance, with fewer potential environmental impacts. A significantly higher cost would be incurred (\$165,000) with a shorter anticipated useful life span for the system (less than 20 years). This option would also have the beneficial effects of allowing for the continued provision of irrigation water through the canal, thereby helping to support the area's agricultural economy, and eliminating the State's liability and administrative oversight of the property by allowing the proposed transfer to proceed.

Proposed Implementation of Action Alternatives (B & C):

Owing to the urgency for the replacement of this siphon, it would be most expedient to contract for professional services by direct negotiation and to solicit estimates from three local contractors, and thus streamline the design/build process as much as possible. Since the canal must be dry before construction can commence, it would be desirable to begin the project at the end of the present irrigation season, remove the old pipe and lay the new pipe this fall, and complete the pipe-trench backfilling and site restoration activities next spring before the onset of the next irrigation season.

Preferred Alternative:

The preferred alternative is Alternative B, the replacement option. This is preferred due to the lower cost and significantly longer service life compared to Alternative C. No significant environmental impacts are anticipated with Alternative B. The No Action Alternative A could result in potentially significant impacts should the siphon fail.

2. Evaluation and listing of mitigation, stipulation, or other control measures enforceable by the agency or another government agency:

No significant impacts are anticipated as a result of either of the proposed action alternatives. Minor, short-term and temporary impacts to soil over covering, vegetative cover, and weed proliferation associated with the replacement option would be mitigated by the reclamation and reseeding of all disturbed areas, and the implementation of weed control measures. Impacts related to noise and air emissions would be temporary, non-significant and end upon completion of the project. Potentially significant impacts could occur to the areas

agricultural economy and to downstream water quality from siltation, sedimentation and flooding should the siphon fail.

3. Based on the significance criteria evaluated in this EA, is an EIS required? YES / NO If an EIS is not required, explain why.

The EA is the appropriate level of analysis for this proposed action.

This is appropriate due to the absence of any significant negative impacts.

4. Describe the level of public involvement for this project if any and, given the complexity and the seriousness of the environmental issues associated with the proposed action, is the level of public involvement appropriate under the circumstances?

The appropriate level of public involvement for this proposal is the distribution of the draft EA to those agencies, groups and individuals listed on the EA cover page for review and/or comment, and publication of the proposed action in the legal notices section of the Helena Independent Record and Butte Montana Standard newspapers. This is an appropriate level of public involvement considering the absence of any negative impacts associated with the proposed actions.

5. Duration of comment period if any: Copies of the EA can be obtained from the address listed below.

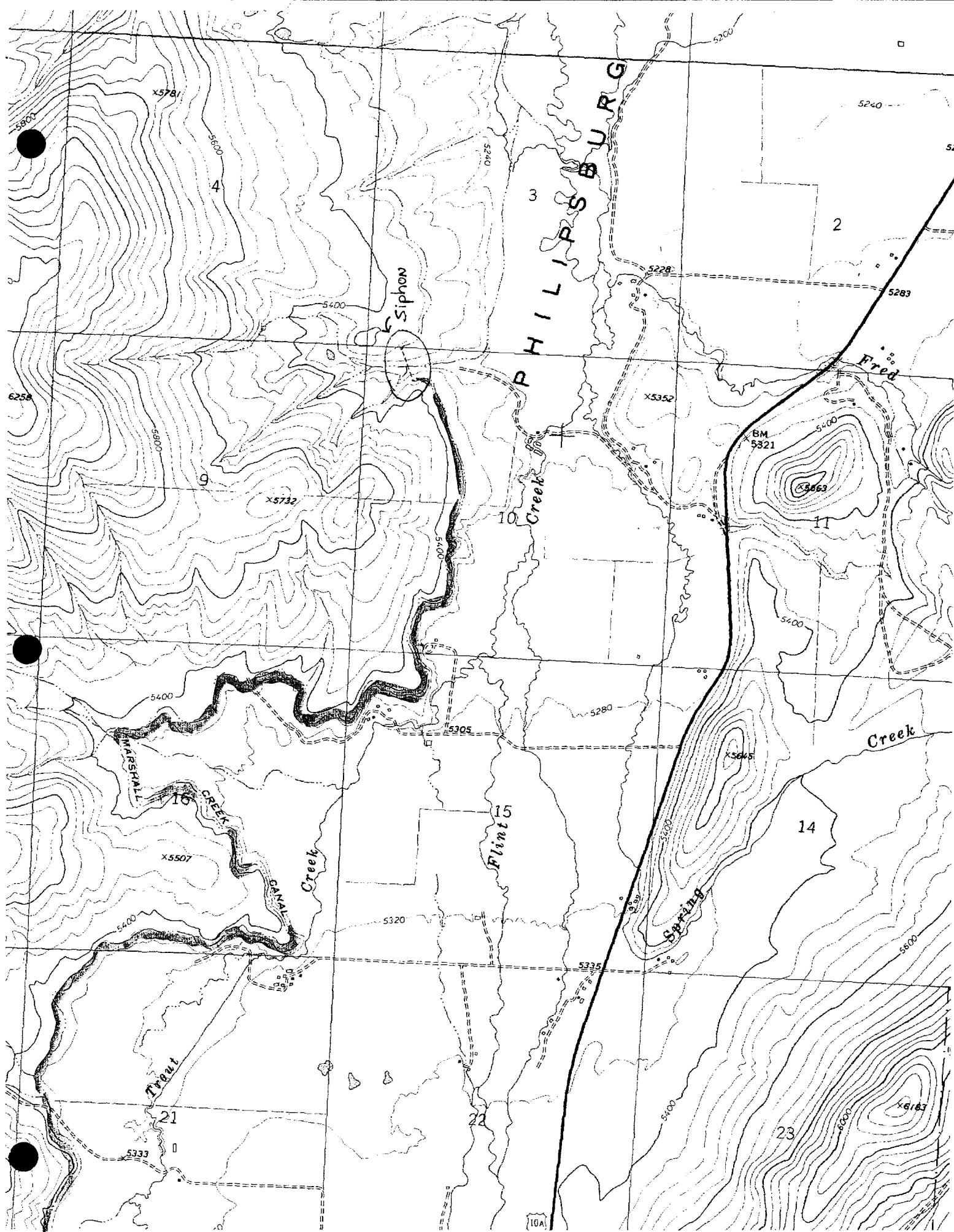
Comments will be accepted until 5:00 p.m., September 9 2002 and should be submitted to DNRC at the address listed below.

6. Name, title, addresses and telephone number of the Person(s) Responsible for Preparing the EA:

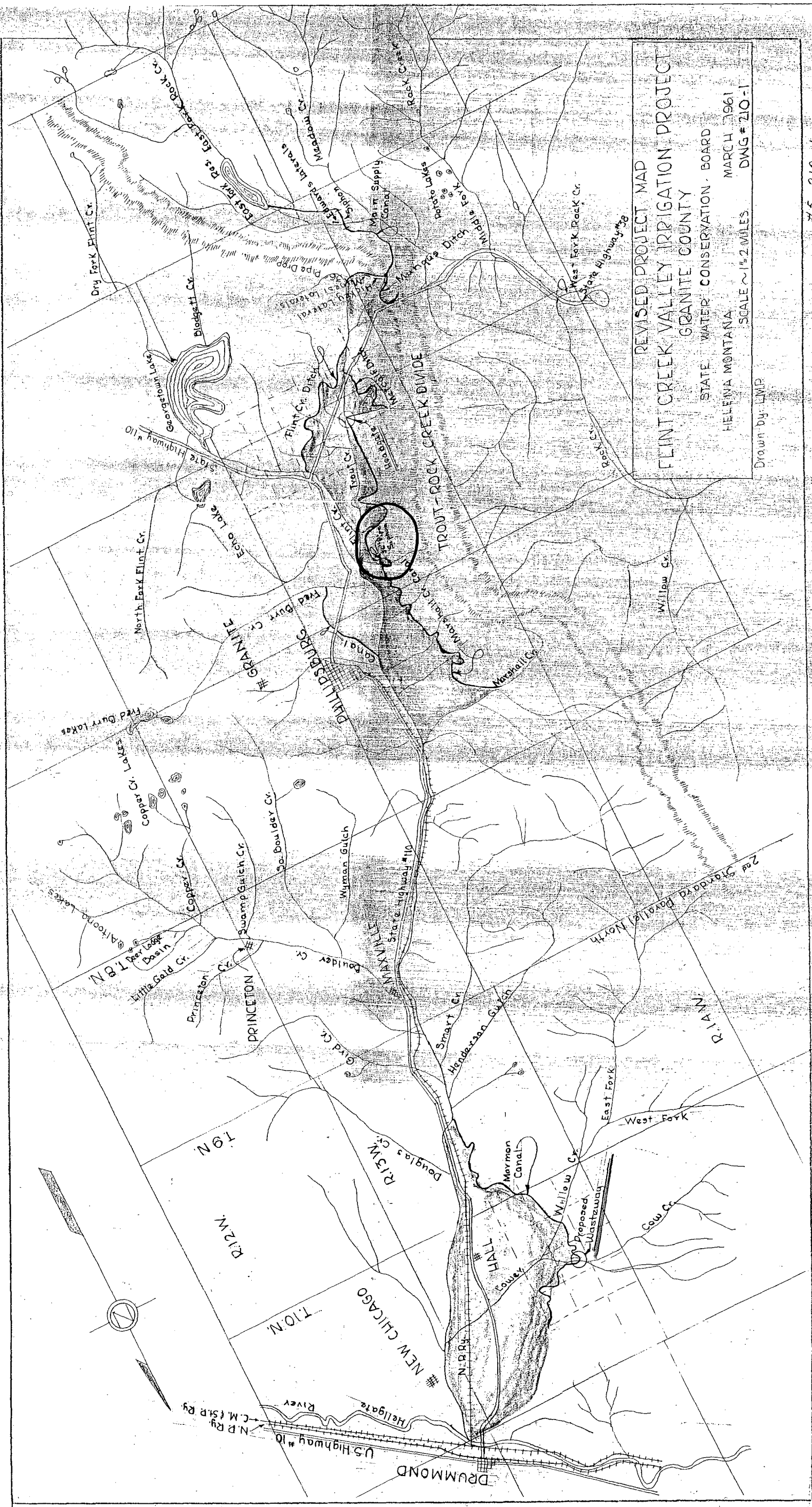
James P. Domino, Environmental Specialist, Department of Natural Resources and Conservation, Water Resources Division, State Water Projects Bureau, 48 N. Last Chance Gulch, P.O. Box 201601, Helena, MT 59620-1601, (406) 444-6622. e-mail jdomino@state.mt.us The EA can also be viewed on the DNRC website at www.dnrc.state.mt.us.

Part IV. Narrative Evaluation and Comment

The action alternatives as proposed do not have any significant impacts. Minor, short-term and temporary impacts to soil overcovering, vegetative cover, and weed proliferation associated with the replacement option would be mitigated by the reclamation and reseeding of all disturbed areas, and the implementation of weed control measures. It is not anticipated that any impacts would occur to bull trout habitat or to any other plant or animal species of special concern with implementation of either of the action alternatives. Impacts related to noise and air emissions would be temporary, non-significant and end upon completion of the project. The public benefits of allowing for the continued provision of irrigation water through the canal, thus supporting the area's agricultural economy and eliminating the State's liability and administrative oversight responsibilities for irrigation canals by allowing the proposed transfer to proceed, are ample justification for the proposed action alternatives. Potentially significant negative impacts to the area's agricultural economy and downstream water quality are associated with the no action alternative and could occur should the siphon fail. Public health and safety would not be negatively impacted by either of the proposed action alternatives.



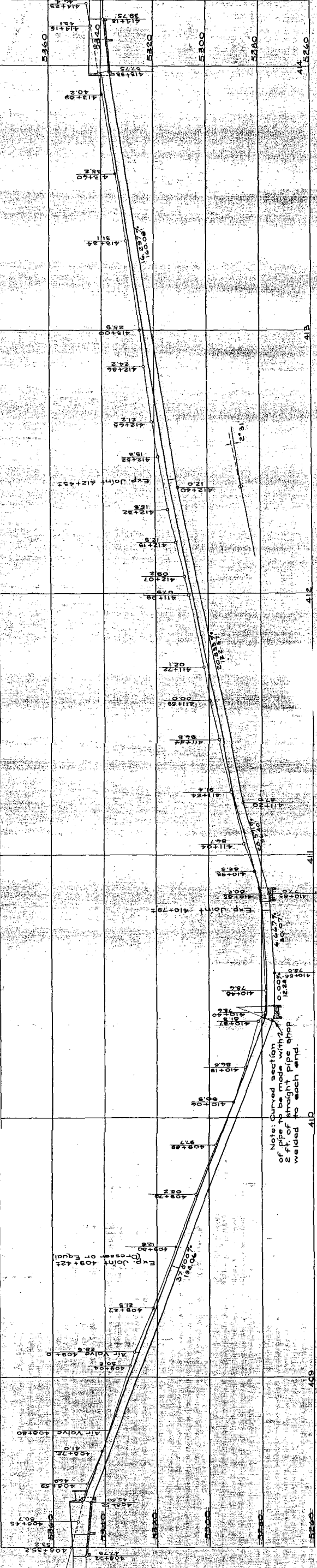




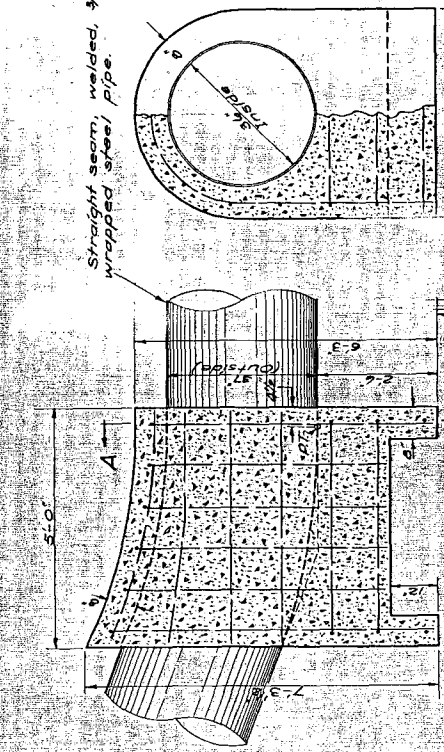
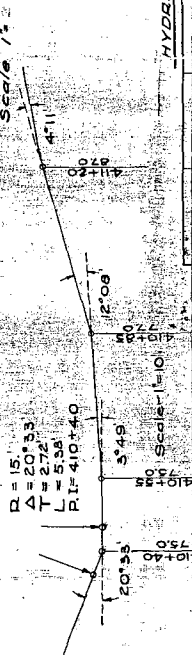
REVISED PROJECT MAP
FLINT CREEK VALLEY IRRIGATION PROJECT
GRANITE COUNTY
STATE WATER CONSERVATION BOARD
HELENA MONTANA
MARCH 1961
SCALE ~ 1 1/2 MILES
DWG # 210-1

Drawn by: LMP

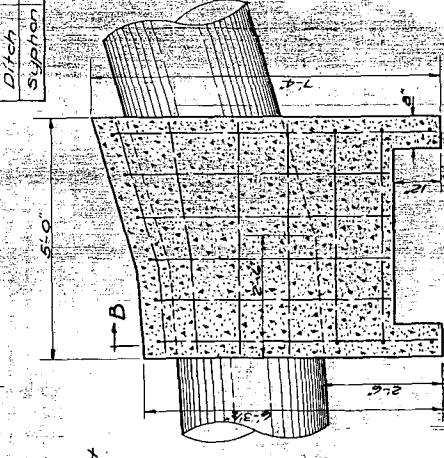
#5-210-1



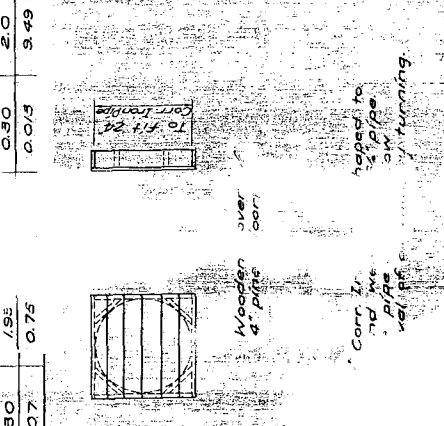
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Reinforcing bars when bent at ends shall have a minimum bend of 4".
All splices to lap 40 diameters and be wrapped with No. 14 wire.
Total length of pipe along bottom 564.85.



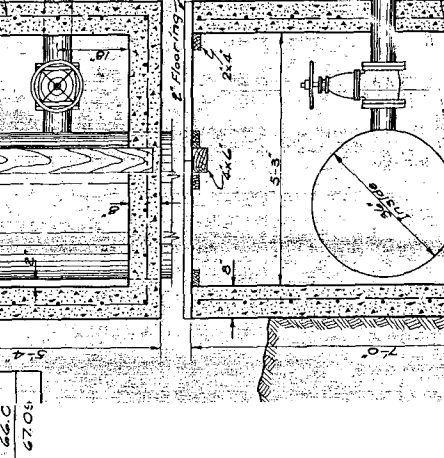
SECTION A-A OR B-B
Scale 1/2" = 10'
Note: All steel 1/2" placed as shown.



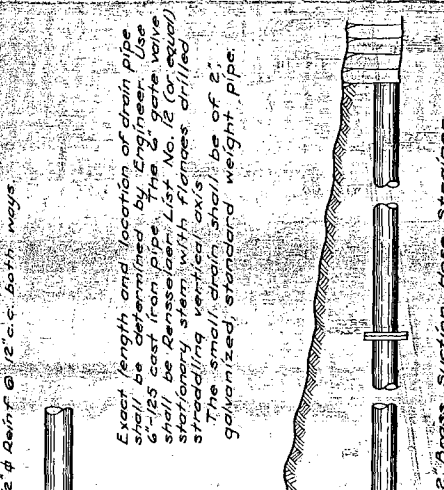
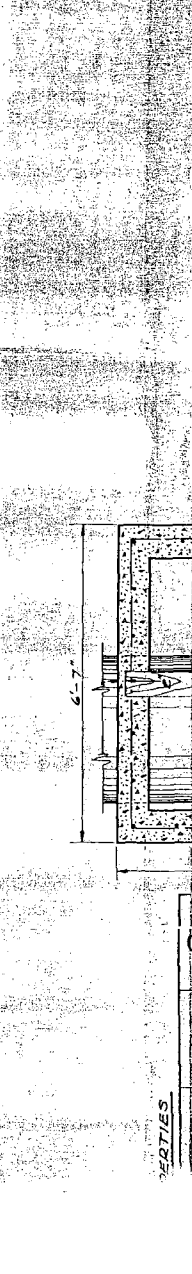
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SECTION C-C
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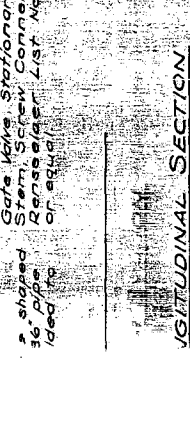
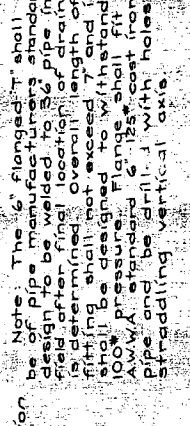


SECTION D-D
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PLAN
Scale 1/2" = 10'

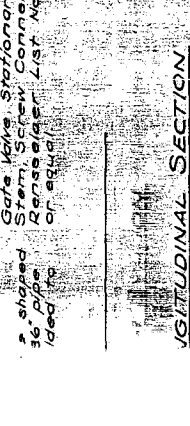
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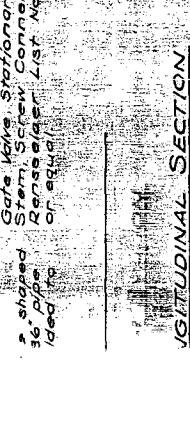
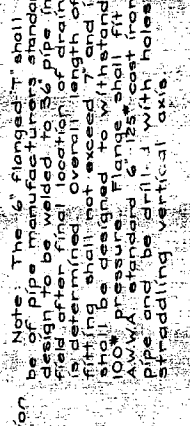


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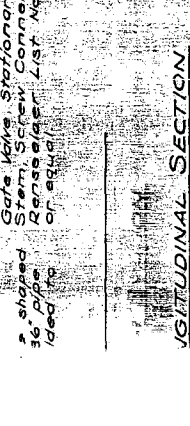
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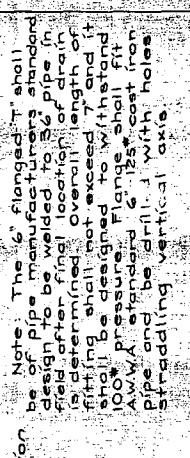
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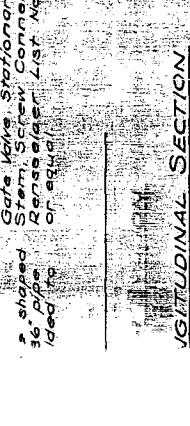
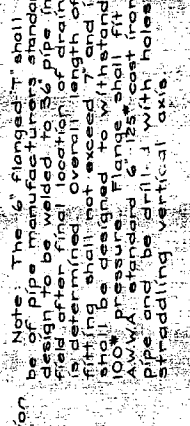


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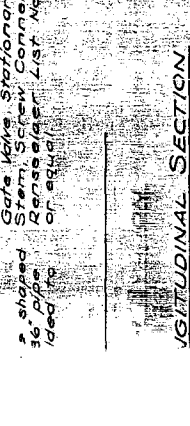
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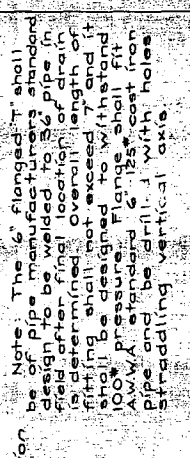
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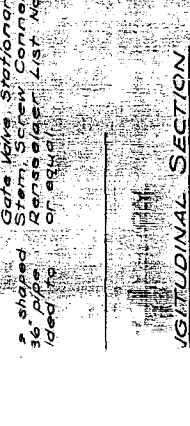
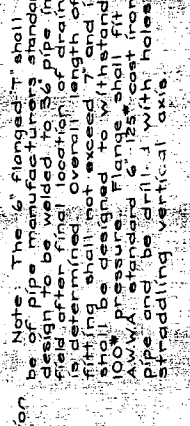


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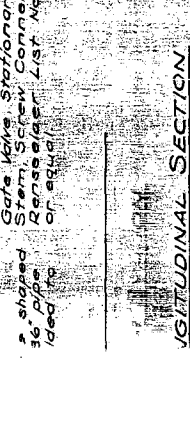
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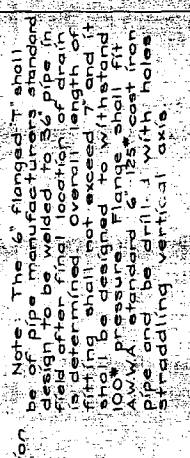
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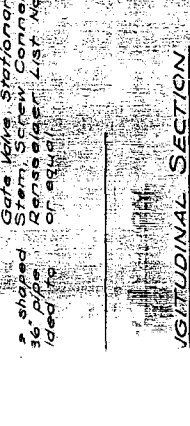
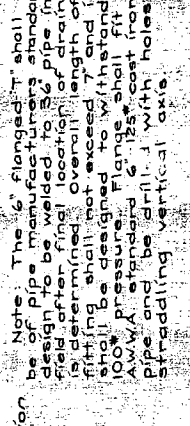


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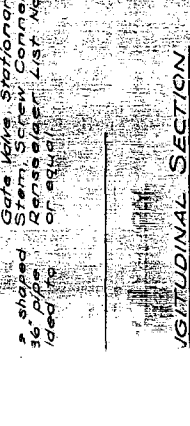
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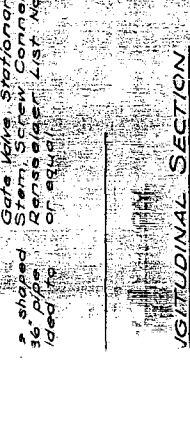
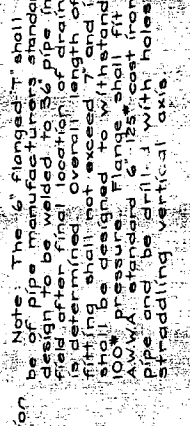


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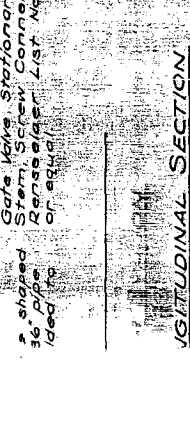
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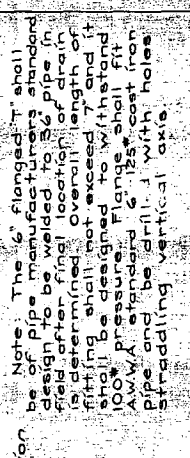
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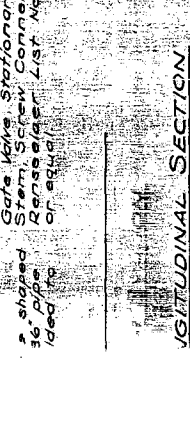
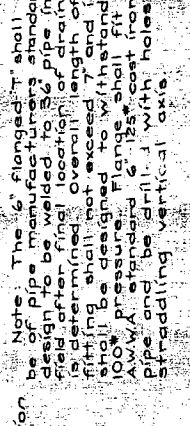


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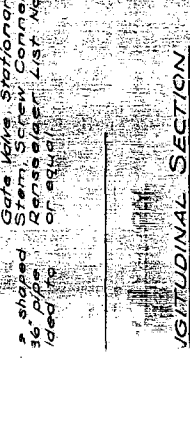
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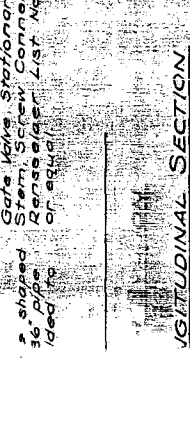
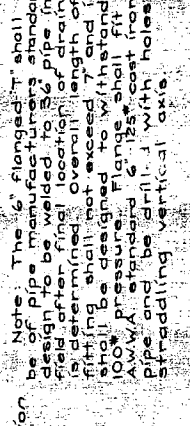


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DEPARTMENT OF NATURAL
RESOURCES AND CONSERVATION



JUDY MARTZ
GOVERNOR

DIRECTOR'S OFFICE (406) 444-2074
TELEFAX NUMBER (406) 444-2684

STATE OF MONTANA

WATER RESOURCES DIVISION (406) 444-6601
TELEFAX NUMBERS (406) 444-0533 / (406) 444-5918

48 NORTH LAST CHANCE GULCH
PO BOX 201601
HELENA, MONTANA 59620-1601

Cover Letter

September 10 2002

TO: Governor's Office, Barbara Ranf, Rm. 204, State Capitol, P.O. Box 200801, Helena, MT 59620-0801
Environmental Quality Council, Capitol Building, Room 106, P.O. Box 201704, Helena, MT 59620
Dept. of Environmental Quality, Metcalf Building, P.O. Box 200901, Helena, MT 59620-0901
Director's Office
Dept. of Natural Resources and Conservation, US F&G Bldg. 1625 11th Ave. Helena, MT 59620
Director's Office
Information Services Section
Water Resources Division, 48 N. Last Chance Gulch, P.O. Box 201601, Helena, MT 59620-1601
Montana Fish, Wildlife & Parks, 1420 E. 6th Ave. Helena, MT 59620
Director's Office
FWP Region 2 Office, 3201 Spurgin Road, Missoula, MT 59804
Wayne Hadley, MT Dept. of Fish, Wildlife & Parks, P.O. Box 1, Deer Lodge, MT 59722
MT Historical Society, State Historic Preservation Office, P.O. Box 201202 Helena, MT 59620-1202
MT State Library, 1515 E. Sixth Ave., P.O. Box 201800, Helena, MT 59620
Montana Environmental Information Center, P.O. Box 1184, Helena, MT 59624
Montana Audubon Council, P.O. Box 595, Helena, MT 59624
Ed Lord, Flint Creek Water Users Association, Box 4796 Skalkaho Rd., Philipsburg, MT 59858
Granite County Commissioners, P.O. Box 929, Philipsburg, MT 59858-0925
Northern Plains Resource Council, 2401 Montana Ave. Suite 200, Billings, MT 59101-2336
U.S. Army Corps of Engineers, 301 S. Park Ave. Drawer 10014, Helena, MT 59626-0014
U.S. Fish & Wildlife Service, MT Field Office, 100 N. Park Ave. Helena, MT 59601
Wildlife Federation, P.O. Box 1175, Helena, MT 59624
Trout Unlimited, P.O. Box 7186, Missoula, MT 59807

Ladies and Gentlemen:

The enclosed Finding of No Significant Impact / Decision Notice has been prepared for the Marshall Canal Siphon Replacement Project. Please feel free to contact James P. Domino at (406) 444-6622, e-mail jdomino@state.mt.us should you have any questions about the Finding of No Significant Impact / Decision Notice or the Final EA. Copies of the Final EA are available upon request. The Final EA can also be viewed on the DNRC website at www.dnrc.state.mt.us. Thank you.

Sincerely,

A handwritten signature in cursive script, appearing to read "Jack Stults".

Jack Stults
Water Resources Division Administrator

FINDING OF NO SIGNIFICANT IMPACT/
NOTICE OF DECISION
September 10 2002

Dear Reader:

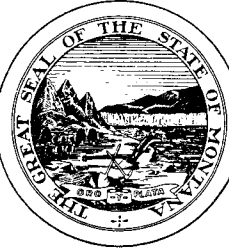
The Montana Department of Natural Resources and Conservation (DNRC) released a draft Environmental Assessment (EA) on the Marshall Canal Siphon Replacement Project on August 9 2002. The Marshall Canal is a component of the Flint Creek Water Project. The siphon is located in Granite County, T6N, R 14W, NW ¼, NW ¼ of section 10. It consists of an underground 36" steel pipe, approximately 550 feet in length. The siphon was constructed in 1939. The Marshall Canal and siphon are owned by the DNRC, while the surrounding lands are privately owned. The DNRC possesses an easement for access to the canal and siphon. The siphon is severely corroded along its length and approaching imminent failure. It ruptured on May 22 of this year, which necessitated the shutdown of the irrigation-canal system for the west side of the Philipsburg Valley. The emergency repair involved welding a steel-plate patch. The repair was a temporary measure taken to return the siphon into service for the current irrigation season. The DNRC evaluated two alternatives for the replacement of the siphon. The preferred alternative would involve the excavation and removal of the old steel pipe, and installation and backfilling of a new 3' X 550' piping system (replacement alternative). The original concrete inlet and outlet structures would still be utilized. A coated steel pipe with galvanic corrosion protection, plastic pipe, PCV pipe, concrete pipe, and fiberglass pipe are various options available for the replacement alternative. It is anticipated that the new pipe would have a service life of 75 to 100 years, and cost from \$100,000 to \$120,000 depending on the material used. The disturbed area for the excavation would extend along the length of the pipe and about three feet on either side, with an existing gravel road used to access the work site. A tracked excavator and backhoe would be used for the project. Any disturbed areas would be reclaimed and reseeded upon completion of the project. A second alternative would be to repair the existing steel pipe with the installation of a plastic liner. This option would be more expensive, about \$165,000, and have an anticipated service life of less than 20 years. This option would involve less on-site physical disturbance. Construction is tentatively planned to begin on September 30 2002 and be completed in the spring of 2003, before the irrigation season begins. The Montana Department of Environmental Quality, Montana Department of Fish, Wildlife and Parks, Montana Natural Heritage Program, State Historic Preservation Office and the Army Corps of Engineers were consulted as part of the draft EA development. The public comment period closed on September 9 2002, with one comment received. An individual was concerned about the DNRC interfering with the delivery of water to the Water Users. It was explained that the proposed project would enhance the delivery of water and not cause any interference. The individual was not opposed to the project. Based on comments received, the EA's disclosure and analysis of potential impacts, the DNRC concludes that the proposed action will not result in any significant impacts. The DNRC will adopt the draft EA as the final EA and proceed with the project as planned, with the preferred replacement alternative. Copies of the Final EA are available upon request. The Final EA can also be viewed on the DNRC website at www.dnrc.mt.us. Please direct any questions to:

James P. Domino
State Water Projects Bureau
DNRC, P.O. Box 201601
Helena, MT 59620-1601
(406) 444-6622
e-mail: jdomino@state.mt.us

Thank you for your interest.

Sincerely
Jack Stults
Water Resources Division Administrator

DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION



JUDY MARTZ
GOVERNOR

DIRECTOR'S OFFICE (406) 444-2074
TELEFAX NUMBER (406) 444-2684

STATE OF MONTANA

WATER RESOURCES DIVISION (406) 444-6601
TELEFAX NUMBERS (406) 444-0533 / (406) 444-5918

48 NORTH LAST CHANCE GULCH
PO BOX 201601
HELENA, MONTANA 59620-1601

Cover Letter

September 16, 2002

TO: Governor's Office, Barbara Ranf, Rm. 204, State Capitol, P.O. Box 200801, Helena, MT 59620-0801
Environmental Quality Council, Capitol Building, Room 106, P.O. Box 201704, Helena, MT 59620
Dept. of Environmental Quality, Metcalf Building, P.O. Box 200901, Helena, MT 59620-0901
Director's Office
Dept. of Natural Resources and Conservation, US F&G Bldg. 1625 11th Ave. Helena, MT 59620
Director's Office
Information Services Section
Water Resources Division, 48 N. Last Chance Gulch, P.O. Box 201601, Helena, MT 59620-1601
Montana Fish, Wildlife & Parks, 1420 E. 6th Ave. Helena, MT 59620
Director's Office
FWP Region 2 Office, 3201 Spurgin Road, Missoula, MT 59804
Wayne Hadley, MT Dept. of Fish, Wildlife & Parks, P.O. Box 1, Deer Lodge, MT 59722
MT Historical Society, State Historic Preservation Office, P.O. Box 201202 Helena, MT 59620-1202
MT State Library, 1515 E. Sixth Ave., P.O. Box 201800, Helena, MT 59620
Montana Environmental Information Center, P.O. Box 1184, Helena, MT 59624
Montana Audubon Council, P.O. Box 595, Helena, MT 59624
Ed Lord, Flint Creek Water Users Association, Box 4796 Skalkaho Rd., Philisburg, MT 59858
Granite County Commissioners, P.O. Box 929, Philipsburg, MT 59858-0925
Northern Plains Resource Council, 2401 Montana Ave. Suite 200, Billings, MT 59101-2336
U.S. Army Corps of Engineers, 301 S. Park Ave. Drawer 10014, Helena, MT 59626-0014
U.S. Fish & Wildlife Service, MT Field Office, 100 N. Park Ave. Helena, MT 59601
Wildlife Federation, P.O. Box 1175, Helena, MT 59624
Trout Unlimited, P.O. Box 7186, Missoula, MT 59807

Ladies and Gentlemen:

The enclosed Environmental Assessment (EA) has been prepared for the Flint Creek Water Project Easement Transfer for the Allendale, Metcalf, East and Marshall Canals, and associated water rights, and is submitted for your consideration. Please feel free to contact me at (406) 444-6622 (e-mail jdomino@state.mt.us) should you have any questions or comments. Comments will be accepted until 5:00 p.m., September 30 2002. Comments can also be mailed to: MT Dept. of Natural Resources and Conservation, State Water Projects Bureau, 48 N. Last Chance Gulch, P.O. Box 201601, Helena, MT 59620-1601, attn. James P. Domino. Copies of the EA are available upon request. The EA can also be viewed on the DNRC website at www.dnrc.state.mt.us. Thank you.

Sincerely,

A handwritten signature in cursive script that reads "James P. Domino".

James P. Domino
Environmental Specialist
State Water Projects Bureau

STATE WATER PROJECTS
BUREAU
(406) 444-6646

WATER MANAGEMENT
BUREAU
(406) 444-6637

WATER OPERATIONS
BUREAU
(406) 444-0860

WATER RIGHTS
BUREAU
(406) 444-6610

DRAFT ENVIRONMENTAL ASSESSMENT MEPA CHECKLIST

Part I. Proposed Action Description

1. Type of Proposed State Action
2. Agency Authority for the Proposed Action

Owner: MT Dept. of Natural Resources and Conservation; Sec. 85-1-210, 85-1-211, 85-6-109 (5) (1997) MCA.

3. Name of Project Flint Creek Water Project, Allendale, Metcalf, East, and Marshall Canals Easement and Water Rights Transfer

4. Name, Address and Phone Number of Project Sponsor (if other than the agency)

MT. Dept. of Natural Resources & Conservation, 48 N. Last Chance Gulch, P.O. Box 201601, Helena, MT 59620 – 1601 (406) 444-6646

5. If Applicable: Estimated Construction/Commencement Date November 1, 2002
Estimated Completion Date December 31 2002
Current Status of Project Design (% complete) N/A %

6. Location Affected by Proposed Action (county, range and township)

Granite County – Township 5N, Range 14W, Sections 4,5,7,8
T5N, R15W, Sec. 13,14,19,24,25,26,31; T6N, R14W, Sec. 3,4,10,16,21,27,32
T7N, R14W, Sec. 16,17,21,28,33,34; T10N, R13W, Sec. 1,2,10,11,12,14,15,16,29,33

7. Project Size: Estimate the number of acres that would be directly affected that are currently:

(a) Developed:	(c) Floodplain.....
Residential acres	acres.
Industrial..... acres	(d) Productive:
Open Space/	Irrigated cropland..... acres
Woodlands /	Dry cropland acres
Recreation..... acres	Forestry acres
(b) Wetlands/Riparian	Rangeland acres
Areas..... acres	(e) X Other...Irrigation Canals...38.4 miles total

8. Map/site plan: attach an original 8 1/2" x 11" or larger section of the most recent USGS 7.5' series topographic map showing the location and boundaries of the area that would be affected by the proposed action. A different map scale may be substituted if more appropriate or if required by agency rule. If available, a site plan should also be attached.

Maps attached.

9. Narrative Summary of the Proposed Action or Project including the Benefits and Purpose of the Proposed Action.

The proposed action calls for the transfer of easements and water rights related to irrigation canals that are part of the Flint Creek Water Project. The proposed easement transfer includes the Allendale, Metcalf, East and Marshall Canals. The canals are located on private and state school trust lands in Granite County. The transfer would be accomplished by a quitclaim deed, with no monetary transactions between the State and the Flint Creek Water Users Association. The original easements were initiated from the 1930's to the early 1950's. The transfer of these property interests will absolve the State of any liability associated with the project and reduces the State's administrative duties.

10. Listing of any other Local, State or Federal agency that has overlapping or additional jurisdiction.

(a) Permits:

Agency Name	Permit	Date Filed/#
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N/A

10. (Continued)

(b) Funding:

<u>Agency Name</u>	<u>Funding Amount</u>
--------------------	-----------------------

N/A

(c) Other Overlapping or Additional Jurisdictional Responsibilities:

<u>Agency Name</u>	<u>Type of Responsibility</u>
--------------------	-------------------------------

N/A

11. List of Agencies Consulted during Preparation of the EA:

MT State Library, Natural Resources Information System

MT State Historic Preservation Office

Part II. Environmental Checklist Review

1. PHYSICAL ENVIRONMENT

IMPACTS

Unknown *	No Impacts	Minor Impacts*	Potentially Significant Impacts*	Can Impacts be Mitigated*	Comment Index
1. <u>LAND RESOURCES</u>					
Will the proposed action result in:					
a. Soil instability or changes in geologic substructure?	X				
b. Disruption, displacement, erosion, compaction, moisture loss, or over-covering of soil which would reduce productivity or fertility?	X				
c. Destruction, covering or modification of any unique geologic or physical features?	X				
d. Changes in siltation, deposition or erosion patterns that may modify the channel of a river or stream or the bed or shore of a lake?	X				
e. Exposure of people or property to earthquakes, landslides, ground failure, or other natural hazard?	X				
f. Other: _____					

**PHYSICAL
ENVIRONMENT
(Continued)**

IMPACTS

	Unknown*	No Impacts	Minor Impacts*	Potentially Significant Impacts*	Can Impacts be Mitigated*	Comment Index
2. AIR						
Will the proposed action result in:						
a. Emission of air pollutants or deterioration of ambient air quality?		X				
b. Creation of objectionable odors?		X				
c. Alteration of air movement, moisture, or temperature patterns or any change in climate, either locally or regionally?		X				
d. Adverse effects on vegetation, including crops, due to increased emissions of pollutants?		X				
e. Other: _____						

**PHYSICAL
ENVIRONMENT**

IMPACTS

	Unknown*	No Impact	Minor Impacts*	Potentially Significant Impacts*	Can Impacts be Mitigated*	Comment Index
<p>3. <u>WATER</u></p> <p>Will the proposed action result in:</p> <p>a. Discharge into surface water or any alteration of surface water quality including but not limited to temperature, dissolved oxygen or turbidity?</p> <p>b. Changes in drainage patterns or the rate and amount of surface runoff?</p> <p>c. Alteration of the course or magnitude of flood water or other flows?</p> <p>d. Changes in the amount of surface water in any water body or creation of a new water body?</p> <p>e. Exposure of people or property to water related hazards such as flooding?</p> <p>f. Changes in the quality of groundwater?</p> <p>g. Changes in the quantity of groundwater?</p> <p>h. Increase in the risk of contamination of surface or groundwater?</p> <p>i. Violation of the Montana Non-Degradation Statute?</p> <p>j. Effects on any existing water right or reservation?</p> <p>k. Effects on other water users as a result of any alteration in surface or groundwater quality?</p> <p>l. Effects on other users as a result of any alteration in surface or groundwater quantity?</p>		<p>X</p> <p>X</p> <p>X</p> <p>X</p> <p>X</p> <p>X</p> <p>X</p> <p>X</p> <p>X</p> <p>X</p> <p>X</p>				

**PHYSICAL
ENVIRONMENT**
(Continued)

IMPACTS

	Unknown*	No Impacts	Minor Impacts*	Potentially Significant Impacts*	Can Impacts be mitigated*	Comment Index
4. <u>VEGETATION</u>						
Will the proposed action result in:						
a. Changes in the diversity, productivity or abundance of plant species (including trees, shrubs, grass, crops, and aquatic plants)?		X				
b. Alteration of a plant community?		X				
c. Adverse effects on any unique, rare, threatened, or endangered plant species?		X				4c
d. Reduction in acreage or productivity of any agricultural land?		X				
e. Establishment or spread of noxious weeds?		X				
f. Other: _____						

4c.) A file search on plant species of special concern was conducted by the Natural Resources Information System of the Montana State Library. Plant species of special concern known to exist in the Flint and Rock Creek basins include the northern buttercup, peculiar moonwort, straightbeak buttercup, simple kobresia, Missoula phlox, and wavy moonwort. It is not anticipated that any plant species of special concern would be impacted by the proposed easement transfer. Montana Fish, Wildlife and Parks (DFWP) and the U.S Fish & Wildlife Service (FWS) will also have the opportunity to comment on the proposed action. Any comments or recommendations received from the DFWP and/or the FWS will be incorporated into the Final EA and Notice of Decision.

**PHYSICAL
ENVIRONMENT
(Continued)**

IMPACTS

	Unknown*	No Impacts	Minor Impacts*	Potentially Significant Impacts*	Can Impacts be Mitigated*	Comment Index
5. FISH/WILDLIFE						
Will the proposed action result in:						
a. Deterioration of critical fish or wildlife habitat?		X				5a
b. Changes in the diversity or abundance of game animals or bird species?		X				5b
c. Changes in the diversity or abundance of nongame species?		X				5c
d. Introduction of new species into an area?		X				5d
e. Creation of a barrier to the migration or movement of animals?		X				5e
f. Adverse effects on any unique, rare, threatened, or endangered species?		X				5f
g. Increase in conditions that stress wildlife populations or limit abundance (including harassment, legal or illegal harvest or other human activity)?		X				5g
h. Other: _____						

5a-g) A file search on animal species of special concern was conducted by the Natural Resources Information System of the Montana State Library. Bull trout and westslope cutthroat trout are known to exist in the Flint and Rock Creek basins, within Flint Creek, the East Fork of Rock Creek Reservoir and various tributaries. The lynx is also listed as a statewide species of special concern. Other listed species found within the basin include bald eagles, a great blue heron rookery, bearmouth mountain snail, byrne resort snail, great grey owl, and boreal owl. It is not anticipated that the proposed easement transfer would impact any listed animal species of special concern. Montana Fish, Wildlife and Parks (DFWP) and the U.S Fish & Wildlife Service (FWS) will also have the opportunity to comment on the proposed action. Any comments or recommendations received from the DFWP and/or the FWS will be incorporated into the Final EA and Notice of Decision.

**2. HUMAN
ENVIRONMENT**

IMPACTS

**6. NOISE/ELECTRICAL
EFFECTS**

Will the proposed action result in:

a. Increases in existing noise levels?

b. Exposure of people to severe or nuisance noise levels?

c. Creation of electrostatic or electromagnetic effects that could be detrimental to human health or property?

d. Interference with radio or television reception and operation?

e. Other: _____

Unknown*	No Impacts	Minor Impacts*	Potentially Significant Impacts*	Can Impacts be Mitigated*	Comment Index
	X				
	X				
	X				
	X				

HUMAN ENVIRONMENT
(Continued)

IMPACTS

7. LAND USE

Will the proposed action result in:

a. Alteration of or interference with the productivity or profitability of the existing land use of an area?

b. Conflict with a designated natural area or area of unusual scientific or educational importance?

c. Conflict with any existing land use whose presence would constrain or potentially prohibit the proposed action?

d. Adverse effects on or relocation of residences?

e. Increase regulatory restrictions on private property rights?

f. Other: _____

Unknown*	No Impacts	Minor Impacts*	Potentially Significant Impacts*	Can Impacts be Mitigated*	Comment Index
	X				
	X				
	X				
	X				
	X				

HUMAN ENVIRONMENT
(Continued)

IMPACTS

	Unknown*	No Impacts	Minor Impacts*	Potentially Significant Impacts*	Can Impacts be Mitigated*	Comment Index
<p>8. <u>RISK/HEALTH HAZARDS</u></p> <p>Will the proposed action result in:</p> <p>a. Risk of an explosion or release of hazardous substances (including but not limited to oil, pesticides, chemicals, or radiation) in the event of an accident or other forms of disruption?</p> <p>b. Affect an existing emergency response or emergency evacuation plan or create a need for a new plan?</p> <p>c. Creation of any human health hazard or potential hazard?</p> <p>d. Other: _____</p>		<p>X</p> <p>X</p> <p>X</p>				

HUMAN ENVIRONMENT
(Continued)

IMPACTS

	Unknown*	No Impacts	Minor Impacts*	Potentially Significant Impacts*	Can Impacts be Mitigated*	Comment Index
<p>9. <u>COMMUNITY IMPACTS</u></p> <p>Will the proposed action result in:</p> <p>a. Alteration of the location, distribution, density, or growth rate of the human population of an area?</p> <p>b. Alteration of the social structure of a community?</p> <p>c. Alteration of the level or distribution of employment or community or personal income?</p> <p>d. Changes in industrial or commercial activity?</p> <p>e. Increased traffic hazards or effects on existing transportation facilities or patterns of movement of people and goods?</p> <p>f. Other: _____</p>		<p>X</p> <p>X</p> <p>X</p> <p>X</p> <p>X</p>				

HUMAN ENVIRONMENT
(Continued)

IMPACTS

Unknown*	No Impacts	Minor Impacts*	Potentially Significant Impacts*	Can Impacts be Mitigated*	Comment Index
<p>10. <u>PUBLIC SERVICES/ TAXES/UTILITIES</u></p> <p>Will the proposed action:</p> <p>a. Have an effect upon or result in a need for new or altered governmental services in any of the following areas: fire or police protection, schools, parks/recreational facilities, roads or other public maintenance, water supply, sewer or septic systems, solid waste disposal, health, or other governmental services? If any, specify:</p> <p>b. Have an effect upon the local or state tax base and revenues?</p> <p>c. Result in a need for new facilities or substantial alterations of any of the following utilities: electric power, natural gas, other fuel supply or distribution systems, or communications?</p> <p>d. Result in increased use of any energy source?</p> <p>e. Other: _____</p>	<p>X</p> <p>X</p> <p>X</p> <p>X</p>				

HUMAN ENVIRONMENT
(Continued)

IMPACTS

11. **AESTHETICS/**
RECREATION

Will the proposed action result in:

a. Alteration of any scenic vista or creation of an aesthetically offensive site or effect that is open to public view?

b. Alteration of the aesthetic character of a community or neighborhood?

c. Alteration of the quality or quantity of recreational opportunities and settings?

d. Other: _____

Unknown*	No Impacts	Minor Impacts*	Potentially Significant Impacts*	Can Impacts be Mitigated*	Comment Index
	X				
	X				
	X				

IMPACTS

HUMAN ENVIRONMENT (Continued)

	Unknown*	No Impacts	Minor Impacts*	Potentially Significant Impacts*	Can Impacts be Mitigated*	Comment Index
12. <u>CULTURAL/</u> <u>HISTORICAL</u> <u>RESOURCES</u>						
Will the proposed action result in:						
a. Destruction or alteration of any site, structure or object of prehistoric, historic, or paleontological importance?		X				12a
b. Physical change that would affect unique cultural values?		X				12b
c. Effects on existing religious or sacred uses of a site or area?		X				12c
d. Other: _____						

12 a, b & c) An assessment on potential impacts to cultural resources resulting from this transfer was completed by the State Historic Preservation Office (SHPO). The SHPO indicated that since no ground disturbing activities will take place, this action has a low likelihood of impacting cultural properties.

**3. SIGNIFICANCE
CRITERIA**

IMPACTS

	Unknown*	No Impacts	Minor Impacts*	Potentially Significant Impacts*	Can Impacts be Mitigated*	Comment Index
<p>13. <u>SUMMARY EVALUATION OF SIGNIFICANCE</u></p> <p>Will the proposed action, considered as a whole:</p> <p>a. Have impacts that are individually limited, but cumulatively considerable? (A project or program may result in impacts on two or more separate resources which create a significant effect when considered together or in total.)</p> <p>b. Involve potential risks or adverse effects which are uncertain but extremely hazardous if they were to occur?</p> <p>c. Potentially conflict with the substantive requirements of any local, state, or federal law, regulation, standard or formal plan?</p> <p>d. Establish a precedent or likelihood that future actions with significant environmental impacts will be proposed?</p> <p>e. Generate substantial debate or controversy about the nature of the impacts that would be created?</p> <p>f. Other: _____</p>		<p>X</p> <p>X</p> <p>X</p> <p>X</p> <p>X</p>				

Part III. Alternatives and Evaluation

1. Description and analysis of reasonable alternatives (including the no action alternative) to the proposed action whenever alternatives are reasonably available and prudent to consider and a discussion of how the alternatives would be implemented:

- A. No action - Would result in continued State liability for the property and continue the need for administrative oversight. The canals no longer provide benefits to the State.
- B. Proceed as planned with the project - This will have the beneficial effects of eliminating the State's liability and administrative oversight of the property.

2. Evaluation and listing of mitigation, stipulation, or other control measures enforceable by the agency or another government agency:

No impacts are anticipated because of this proposed action.

3. Based on the significance criteria evaluated in this EA, is an EIS required? YES / NO If an EIS is not required, explain why.

The EA is the appropriate level of analysis for this proposed action.

This is appropriate due to the absence of any negative impacts, and the beneficial outcome in allowing the State to absolve itself of the liability and administrative oversight responsibilities for this property.

4. Describe the level of public involvement for this project if any and, given the complexity and the seriousness of the environmental issues associated with the proposed action, is the level of public involvement appropriate under the circumstances?

The appropriate level of public involvement for this proposal is the distribution of the draft EA to those agencies, groups and individuals listed on the EA cover page for review and/or comment. This is an appropriate level of public involvement considering the absence of any negative impacts associated with the proposed action.

5. Duration of comment period if any: Copies of the EA can be obtained from the address listed below.

Comments will be accepted until 5:00 p.m., September 30 2002 and should be submitted to DNRC at the address listed below.

6. Name, title, addresses and telephone number of the Person(s) Responsible for Preparing the EA:

James P. Domino, Environmental Specialist, Department of Natural Resources and Conservation, Water Resources Division, State Water Projects Bureau, 48 N. Last Chance Gulch, P.O. Box 201601, Helena, MT 59620-1601, (406) 444-6622. e-mail jdomino@state.mt.us

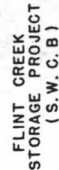
Part IV. Narrative Evaluation and Comment

The project as proposed does not have any identified negative impacts. The public benefits of eliminating the State's liability and administrative oversight responsibilities for irrigation canals are ample justification for the proposed transfer of the easements. Species of special concern known to exist in the area would be unaffected by the proposed transfer. Public health and safety would not be negatively impacted by the proposed action.

—Flint Creek

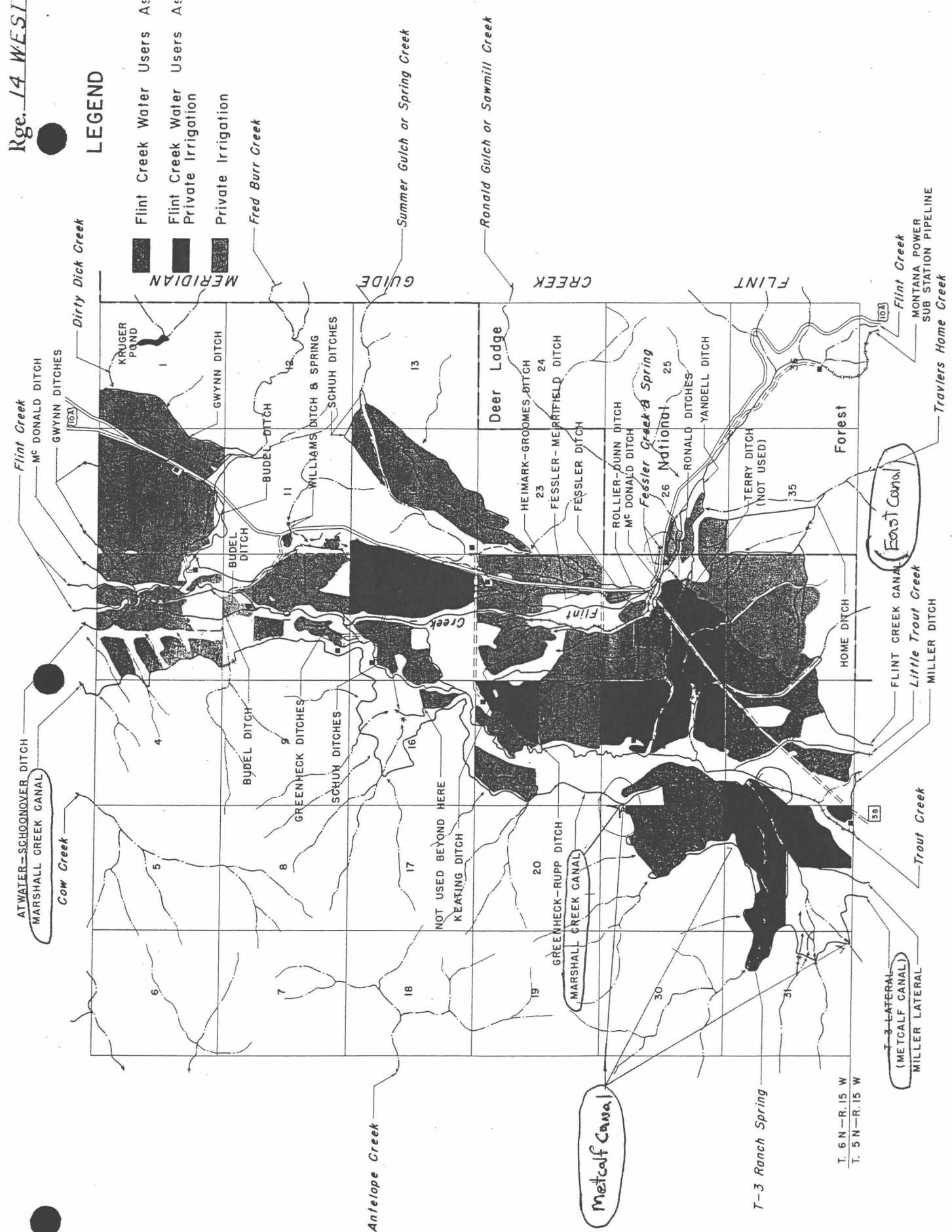
Flint Creek Water Users Ass'n.
Flint Creek Water Users Ass'n. &
Private Irrigation
Private Irrigation

COUNTY



LEGEND

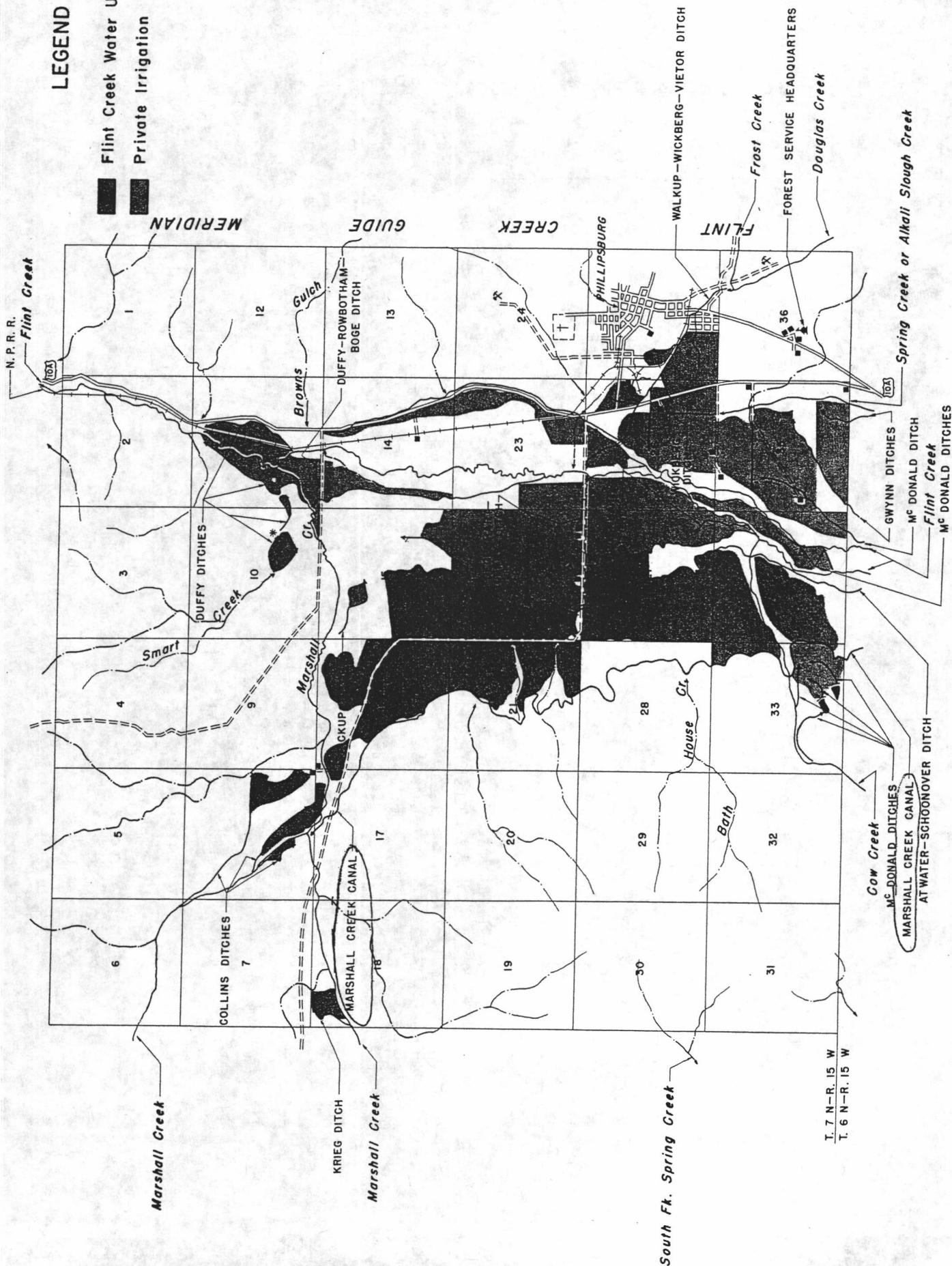
- Flint Creek Water Users As
- Flint Creek Water Users As
- Private Irrigation
- Private Irrigation



T. 6 N. - R. 15 W.
T. 5 N. - R. 15 W.

LEGEND

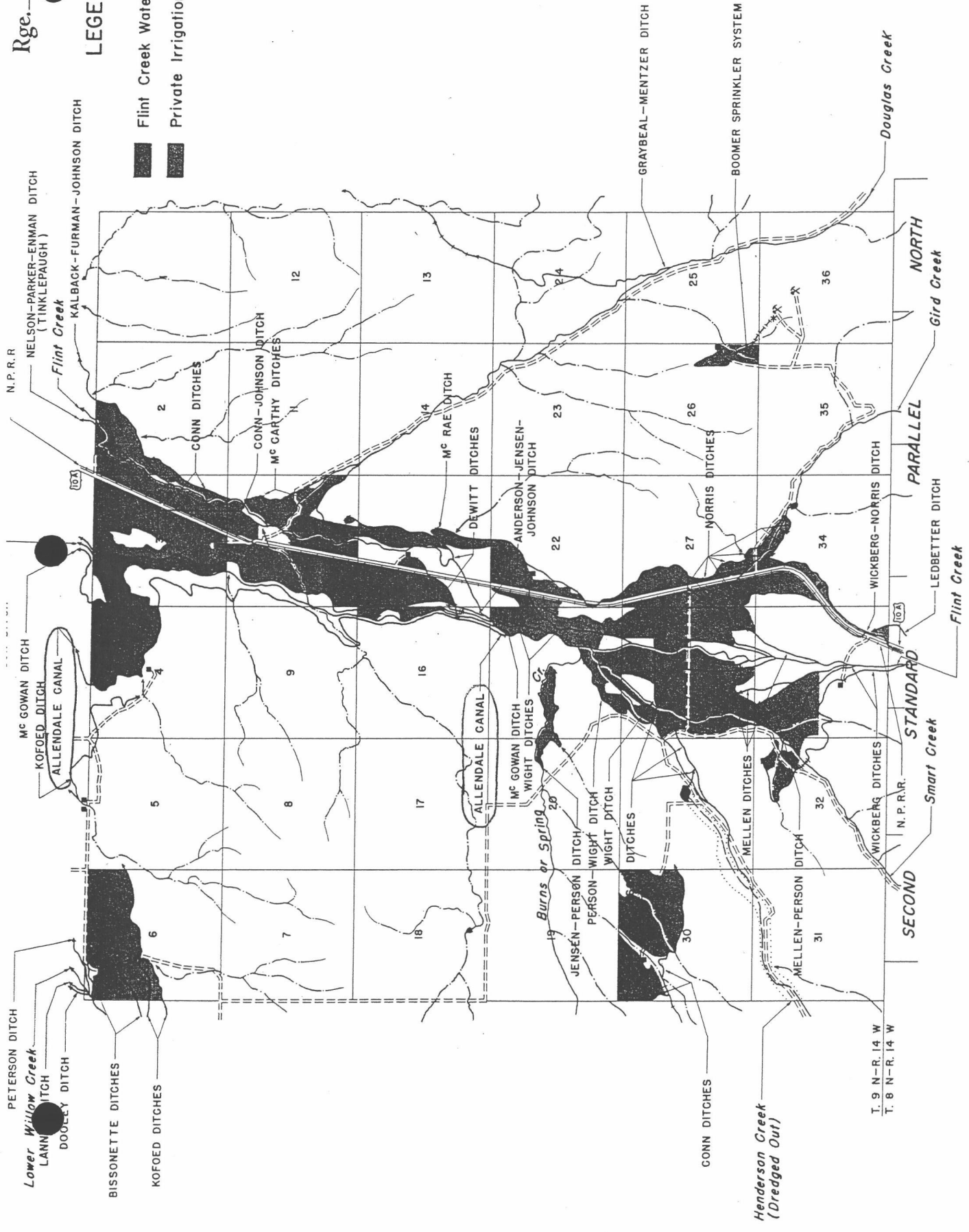
- Flint Creek Water Users Ass'n
- Private Irrigation



T. 7 N-R. 15 W
T. 6 N-R. 15 W

LEGEND

- Flint Creek Water Users Ass'n
- Private Irrigation

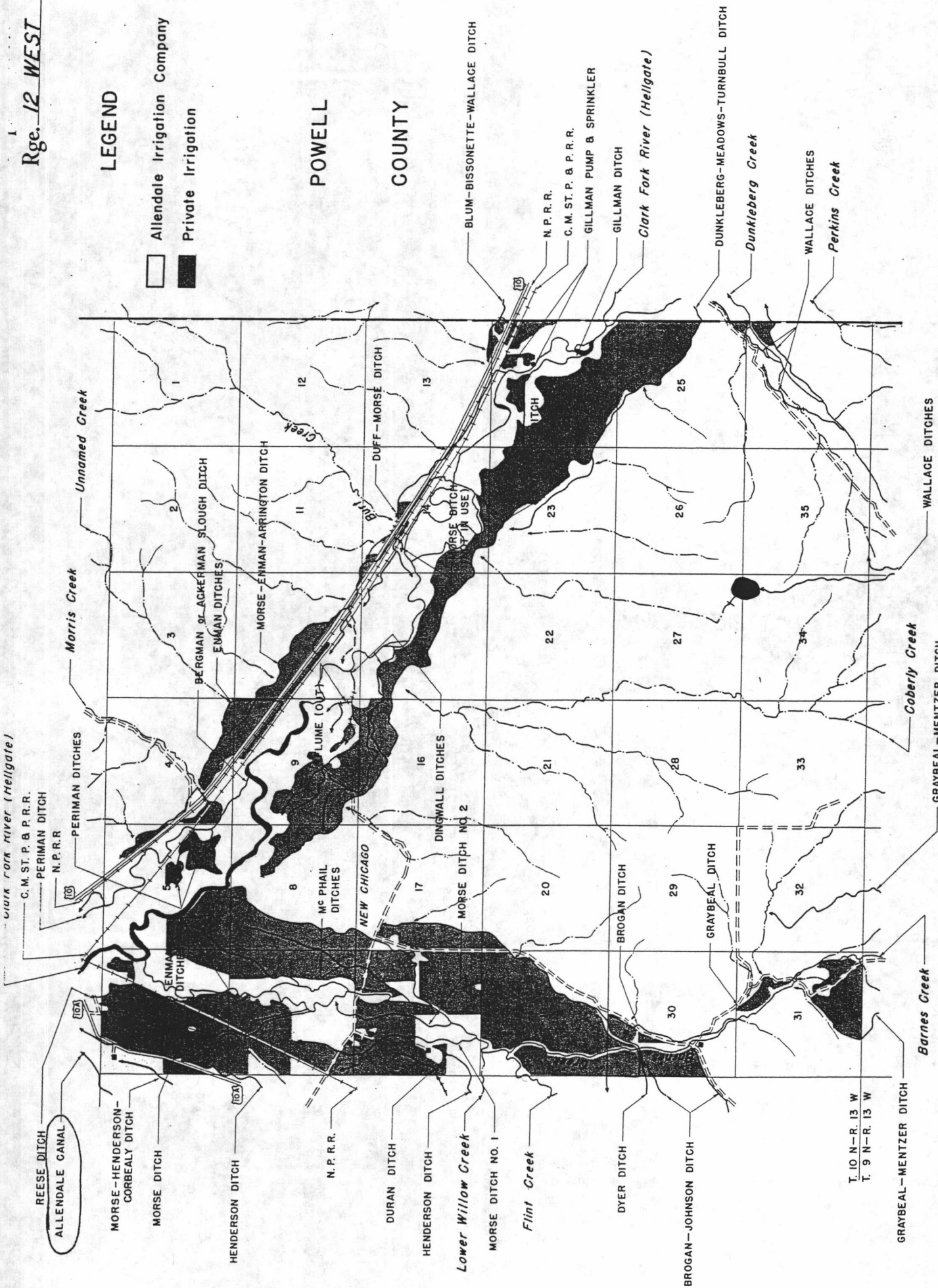


LEGEND

- Allendale Irrigation Company
- Private Irrigation

POWELL

COUNTY



LEGEND

- Allendale Irrigation Company
- Allendale Irrigation Company & Flint Creek Water Users Ass'n.
- Flint Creek Water Users Ass'n.
- Private Irrigation

CORBEALY-HENDERSON-MORSE DITCH

N. P. R. R.

DURAN DITCH

HENDERSON DITCHES

Lower Willow Creek

Flint Creek

PICKUP DITCH

BROGAN-JOHNSON DITCH

DYER DITCH

KALBACK-FURMAN-JOHNSON DITCH

NELSON-ENMAN-PARKER DITCH (TINKLEPAUGH)

Flint Creek

N. P. R. R.

KOFOED DITCHES

ALLLENDALE CANAL

MC GOWAN DITCH

ANDERSON-JENSEN-JOHNSON DITCH

Lower Willow Creek

PETERSON DITCH

KOFOED DITCH

T. 10 N.-R. 14 W.
T. 9 N.-R. 14 W.

Cow Creek

DOOLEY HIGH WATER DITCH

LANNAN DITCH

DOOLEY DITCHES

MANLEY-MC GOWAN DITCH

MC DONALD DITCH

DOOLEY DITCHES

DOOLEY DITCHES

DOOLEY DITCHES

DOOLEY DITCHES

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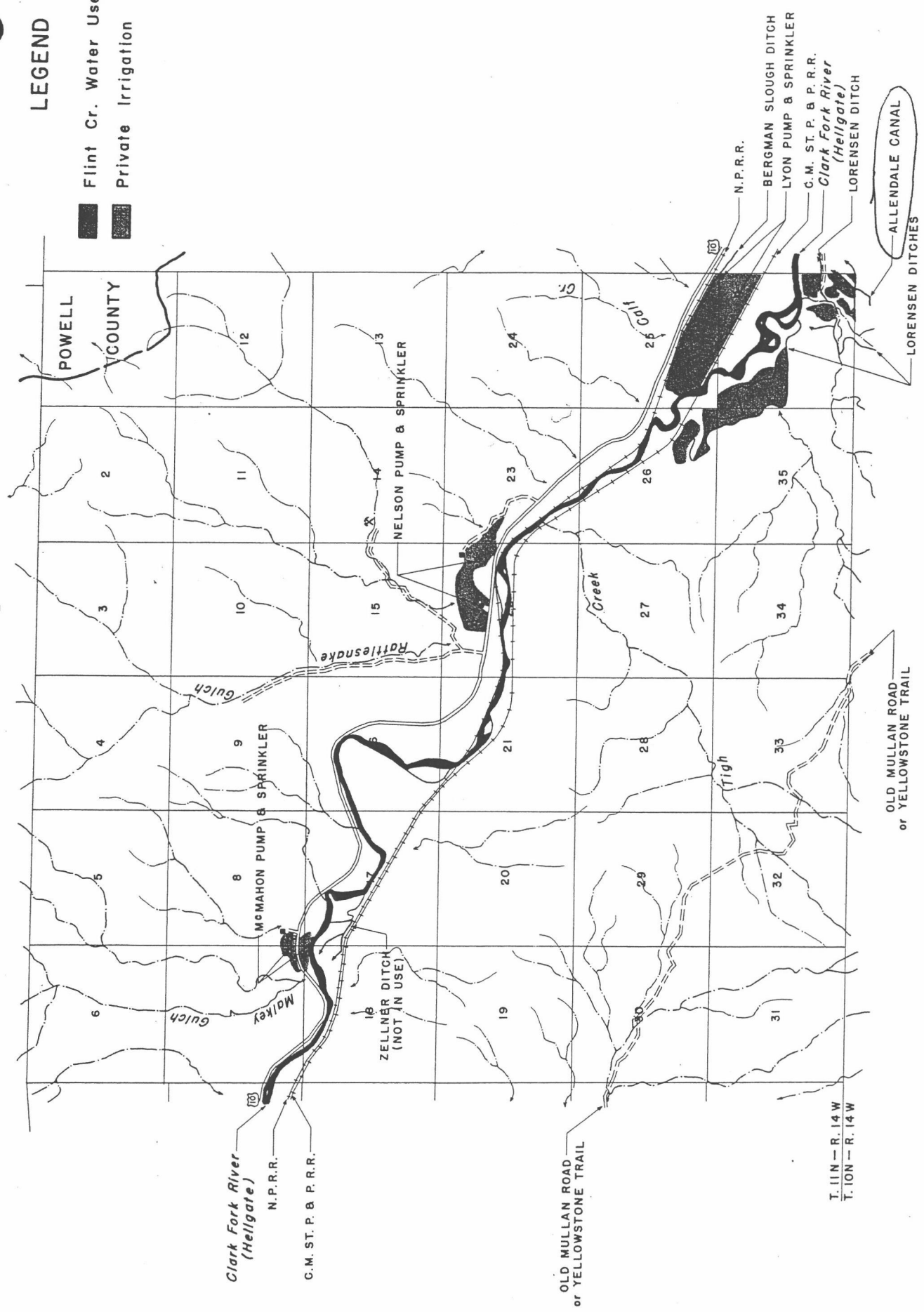
DOOLEY DITCHES

DOOLEY DITCHES

COUNTY

LEGEND

- Flint Cr. Water Users Ass'n.
- Private Irrigation





MONTANA HISTORICAL SOCIETY

225 North Roberts ♦ P.O. Box 201201 ♦ Helena, MT 59620-1201
♦ (406) 444-2694 ♦ FAX (406) 444-2696 ♦ www.montanahistoricalsociety.org ♦

September 20, 2001

James P. Domino
Montana Department of Natural Resources and Conservation
State Water Projects Bureau
PO Box 201601
Helena, MT 59620-1601

RE: FLINT CREEK IRRIGATION EASEMENTS TRANSFER. SHPO Project #:
2001092002

Dear Mr. Domino:

I have conducted a cultural resource file search for the above-cited project. According to our records their area currently no historic or archaeological sites located within the designated search areas. Our files do show, however, that five cultural resource inventories have been conducted within a few of the designated sections. I have enclosed a list of these reports, which includes basic bibliographic information such as author, title, and date completed. If you would like more information regarding these reports you may contact me at the number listed below.

We feel that if no new ground disturbance will occur as the result of this undertaking that there is a low likelihood that this undertaking will impact unknown or unrecorded cultural properties. However if cultural materials are encountered during the course of the project we would ask that our office be contacted and the site investigated. Thank you for consulting with us.

If you have any further questions or comments you may contact me at (406)-444-7767 or by e-mail at dmurdo@state.mt.us.

Sincerely,

Damon Murdo
Cultural Records Manager

Enclosure:

File: DNRC/WATER/2001





State Historic Preservation Office

Cultural Resource Annotated Bibliography System

Report

Report Date:

09/20/2001

Township: 05N Range: 14W Section: 4

MORRIS

SANDRA L. AND GREGORY R. LEETZ

5/15/1999

DEER LODGE NATIONAL FOREST HISTORIC PRESERVATION AND
MANAGEMENT PLAN - ANNUAL REPORT

CRABS Document Number: ZZ 1 22425

Township: 06N Range: 14W Section: 21

PASSMANN

DORI, ET AL.

1/ / 1999

1998 NRCS NEGATIVE FINDINGS REPORT, (GRANITE COUNTY)

CRABS Document Number: GN 6 21771

Township: 06N Range: 14W Section: 27

PASSMANN

DORI, ET AL.

1/ / 1999

1998 NRCS NEGATIVE FINDINGS REPORT, (GRANITE COUNTY)

CRABS Document Number: GN 6 21771

Township: 06N Range: 14W Section: 27

PASSMANN

DORI, ET AL.

1/ / 2001

2000 NRCS COMPILATION OF FIELD STAFF NEGATIVE FINDINGS REPORTS
FOR GRANITE COUNTY MONTANA

CRABS Document Number: GN 6 23463

Township: 07N Range: 14W Section: 16

STEERE

PETER L.

7/10/1981

BLACK PINE MINING CO., PROJECT

CRABS Document Number: GN 1 3838

Township: 07N Range: 14W Section: 17

STEERE

PETER L.

7/10/1981

BLACK PINE MINING CO., PROJECT

CRABS Document Number: GN 1 3838

Township: 10N Range: 13W Section: 12

MOORE

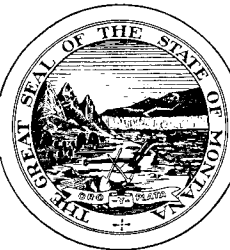
CONNIE N., ET AL.

2/ / 1990

CULTURAL RESOURCE INVENTORY: MONTANA DEPARTMENT OF HIGHWAYS F
19-2(11)48 - MAXVILLE DRUMMOND PROJECT

CRABS Document Number: GN 4 3956

DEPARTMENT OF NATURAL
RESOURCES AND CONSERVATION



JUDY MARTZ
GOVERNOR

DIRECTOR'S OFFICE (406) 444-2074
TELEFAX NUMBER (406) 444-2684

STATE OF MONTANA

WATER RESOURCES DIVISION (406) 444-6601
TELEFAX NUMBERS (406) 444-0533 / (406) 444-5918

48 NORTH LAST CHANCE GULCH
PO BOX 201601
HELENA, MONTANA 59620-1601

Cover Letter

November 15, 2002

TO: Governor's Office, Barbara Ranf, Rm. 204, State Capitol, P.O. Box 200801, Helena, MT 59620-0801
Environmental Quality Council, Capitol Building, Room 106, P.O. Box 201704, Helena, MT 59620
Dept. of Environmental Quality, Metcalf Building, P.O. Box 200901, Helena, MT 59620-0901
Director's Office
Dept. of Natural Resources and Conservation, US F&G Bldg. 1625 11th Ave. Helena, MT 59620
Director's Office
Information Services Section
Water Resources Division, 48 N. Last Chance Gulch, P.O. Box 201601, Helena, MT 59620-1601
Montana Fish, Wildlife & Parks, 1420 E. 6th Ave. Helena, MT 59620
Director's Office
FWP Region 2 Office, 3201 Spurgin Road, Missoula, MT 59804
Wayne Hadley, MT Dept. of Fish, Wildlife & Parks, P.O. Box 1, Deer Lodge, MT 59722
MT Historical Society, State Historic Preservation Office, P.O. Box 201202 Helena, MT 59620-1202
MT State Library, 1515 E. Sixth Ave., P.O. Box 201800, Helena, MT 59620
Montana Environmental Information Center, P.O. Box 1184, Helena, MT 59624
Montana Audubon Council, P.O. Box 595, Helena, MT 59624
Ed Lord, Flint Creek Water Users Association, Box 4796 Skalkaho Rd., Philipsburg, MT 59858
Granite County Commissioners, P.O. Box 929, Philipsburg, MT 59858-0925
Northern Plains Resource Council, 2401 Montana Ave. Suite 200, Billings, MT 59101-2336
U.S. Army Corps of Engineers, 301 S. Park Ave. Drawer 10014, Helena, MT 59626-0014
U.S. Fish & Wildlife Service, MT Field Office, 100 N. Park Ave. Helena, MT 59601
Wildlife Federation, P.O. Box 1175, Helena, MT 59624
Trout Unlimited, P.O. Box 7186, Missoula, MT 59807

Ladies and Gentlemen:

The enclosed Finding of No Significant Impact / Decision Notice has been prepared for the Flint Creek Water Project Easement Transfer for the Allendale, Metcalf, East and Marshall Canals. Please feel free to contact James P. Domino at (406) 444-6622, e-mail jdomino@state.mt.us should you have any questions about the Finding of No Significant Impact / Decision Notice or the Final EA. Copies of the Final EA are available upon request. The Final EA can also be viewed on the DNRC website at www.dnrc.state.mt.us. Thank you.

Sincerely,

A handwritten signature in cursive script, appearing to read "Jack Stults".

Jack Stults
Water Resources Division Administrator

FINDING OF NO SIGNIFICANT IMPACT/
NOTICE OF DECISION

November 15, 2002

Dear Reader:

The Montana Department of Natural Resources and Conservation (DNRC) released a draft Environmental Assessment (EA) on the Flint Creek Water Project Easement Transfer for the Allendale, Metcalf, East and Marshall Canals on September 16, 2002. The proposed action calls for the transfer of easements and water rights related to irrigation canals that are part of the Flint Creek Water Project. The canals are located on private and state school trust lands in Granite County, Montana. The transfer would be accomplished by a quitclaim deed, with no monetary transactions between the State and the Flint Creek Water Users Association. The original easements were initiated from the 1930's to the early 1950's. The transfer of these property interests will absolve the State of any liability associated with the project and reduces the State's administrative duties. The Montana Department of Environmental Quality, Montana Department of Fish, Wildlife and Parks, Montana Natural Heritage Program, and the Montana State Historic Preservation Office were consulted as part of the draft EA process. The original comment period closed on September 30, 2002, with two comments received. Montana Trout Unlimited (TU) and the MT Department of Fish, Wildlife and Parks (DFWP) submitted comments requesting additional information on the leases and water rights associated with the proposed transfer. TU also commented on the adequacy of the EA in complying with the MEPA. The public comment period was extended to October 31, 2002 in order to address the TU and DFWP concerns, and to provide additional opportunity for comment. The US Fish and Wildlife Service (FWS) submitted one comment during the extension. The FWS agreed that the easement transfer itself would probably not have any significant impacts, however they recommended that fish screens be installed, along with a maintenance agreement. The TU and DFWP issues were addressed in a letter sent on October 29, 2002, in which the TU and DFWP questions on the leases and water rights were answered, and the EA's full compliance with the MEPA process was detailed. A letter was also submitted to the FWS on November 7, 2002 explaining that the fish screen issue has been investigated, and that the Water Users Association would be responsible for compliance with all applicable federal, state, and local laws related to the operation of the canal system. No other comments were received. The DFWP also requested a further extension of the comment period in a letter sent on October 31, 2002. Based on the EA's disclosure and analysis of potential impacts, and DNRC concludes that the proposed action will not result in any significant impacts, and that a further extension of the comment period is not warranted. The DNRC will adopt the draft EA as the final EA and proceed with the transfer as planned. Copies of the Final EA are available upon request. The Final EA can also be viewed on the DNRC website at www.dnrc.mt.us. Please direct any questions to:

James P. Domino
State Water Projects Bureau
DNRC, P.O. Box 201601
Helena, MT 59620-1601
(406) 444-6622
e-mail: jdomino@state.mt.us

Thank you for your interest.

Sincerely,
Jack Stults
Water Resources Division Administrator

CHECKLIST ENVIRONMENTAL ASSESSMENT

Project Name: Prickly Pear Creek Proposed Implementation Date: Nov. 1, 2002
 Proponent: Montana DNRC, 8001 North Montana Ave., Helena, MT 59602
 Type and Purpose of Action: A comprehensive restoration of the Ponderosa Pine ecosystem to restore sustainable structure and function, increase tree vigor, reduce fire hazards, regenerate seral species, and produce income for the school trust.
 Location: S1/2, W1/2NW1/4 sec. 16, T8N, R3W County: Jefferson

I. PROJECT DEVELOPMENT	
1. PUBLIC INVOLVEMENT, AGENCIES, GROUPS OR INDIVIDUALS CONTACTED: Provide a brief chronology of the scoping and ongoing involvement for this project.	Scoping began in April 2001 with a letter being sent to the adjacent landowners. An initial proposal was sent out to 34 individuals and groups in Sept. 2001. (This listing is in the project file at the CLO.) Legal notices were published in the Helena IR on 9/26, 10/7 & 17 and in the Boulder Monitor on 9/26, 10/3 & 17. A field trip to the project area was held on 11/8/01. Contacts with DNRC specialists and FWP Biologists was ongoing into January 2002.
2. OTHER GOVERNMENTAL AGENCIES WITH JURISDICTION, LIST OF PERMITS NEEDED:	Jefferson County Weed Board - A revegetation and weed management plan must be approved by the Weed Board prior to operations.
3. ALTERNATIVES CONSIDERED:	<p>No Action - Under the no action proposal, no thinning would be conducted. Conditions and activities would continue as they currently are.</p> <p>Proposed Action - Commercial and pre-commercial thinning on an estimated 62 acres, no road construction, winter operations, mechanical slash treatments (no burning), pre and post operation weed management activities. Existing grazing and recreational uses unchanged.</p>
II. IMPACTS ON THE PHYSICAL ENVIRONMENT	
RESOURCE	[Y/N] POTENTIAL IMPACTS AND MITIGATION MEASURES = Not present or No Impact will occur. Y = Impacts may occur (explain below)
4. GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE: Are fragile, compactible or unstable soils present? Are there unusual geologic features? Are there special reclamation considerations? Are cumulative impacts likely to occur as a result of this proposed action?	<p>[N] Soil resources and impacts are described in the attached report by George Mathieus, DNRC Hydrologist. The mitigation measures identified in the report would be implemented throughout the project.</p> <p>Winter operations, use of an in-woods processing system and use of other standard BMPs would prevent any direct or cumulative adverse affects to soils.</p> <p>BMPs have successfully minimized any adverse erosion on other nearby State tracts with similar soils, treatments, and operating seasons.</p>
5. WATER QUALITY, QUANTITY AND DISTRIBUTION: Are important surface or groundwater resources present? Is there potential for violation of ambient water quality standards, drinking water maximum contaminant levels, or degradation of water quality? Are cumulative impacts likely to occur as a result of this proposed action?	<p>[N] Hydrologic resources are described in the attached report by George Mathieus, DNRC Hydrologist.</p> <p>There is no surface water in the project area. There is no direct surface connectivity to Prickly Pear Creek. Direct or cumulative adverse effects to water quality would be negligible due to the following factors: winter operations, use of an in-woods processing system, use of other standard BMPs, low average precipitation and lack of surface water in the project area.</p>

<p>6. AIR QUALITY: Will pollutants or particulate be produced? Is the project influenced by air quality regulations or zones (Class I airshed)? Are cumulative impacts likely to occur as a result of this proposed action?</p>	<p>[N] No Slash burning operations are proposed. No cumulative air quality impacts are likely to occur. (Slash fire hazards would be treated by a variety of mechanical methods.)</p>
<p>7. VEGETATION COVER, QUANTITY AND QUALITY: Will vegetative communities be permanently altered? Are any rare plants or cover types present? Are cumulative impacts likely to occur as a result of this proposed action?</p>	<p>[N] A vegetative analysis for the project area has been completed. That report is attached, and describes the existing vegetative conditions, including an old growth evaluation.</p> <p>The proposed thinning operations would return the stand to a semblance of the natural condition. As proposed, the project would retain 29% of the trees ≥ 6 inch dbh, 42% of the Basal area, and 54% of the standing net sawlog volume. Most of the larger trees would be retained. An estimated 241 MBF of logs and 1100 tons of roundwood product would be harvested.</p> <p>The stand does not currently meet old growth minimum requirements as defined by Green et.al. The average age of large (≥ 17 inch dbh) trees is only 113 years. (Green minimum is 180 years for this type.) The proposed post treatment stand would still exceed Green et.al. minimum requirements for numbers of large trees per acre and stand Basal area. Thus maintaining the potential for the stand to develop into an old growth condition in the future.</p> <p>There are no rare or endangered plants known in the area.</p> <p>Some noxious weeds (spotted knapweed and dalmation toadflax) are present on site. The proposal includes a weed management plan which would have an adverse affect on weed populations. The plan is expected to include pre and post operation weed spraying and biological control agents. All weed spraying would be by licensed applicators, in accordance with labeling requirements.</p>
<p>8. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS: Is there substantial use of the area by important wildlife, birds or fish? Are cumulative impacts likely to occur as a result of this proposed action?</p>	<p>[N] The area is inhabited by Mule deer and occasionally by Elk. Wildlife Biologist Gayle Joslin, DFWP evaluated the project area. Thermal cover and movement routes along ephemeral drainages would be maintained by retaining clumps of trees in pole size patches within the stand and by retaining stringers of larger trees along draws. A copy of Gayle Joslin's comments are attached. Cumulative impacts are not likely to occur as a result of the proposed action.</p>

<p>9. UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES: Are any federally listed threatened or endangered species or identified habitat present? Any wetlands? Sensitive Species or Species of special concern? Are cumulative impacts likely to occur as a result of this proposed action?</p>	<p>[Y] The project area does NOT contain habitat suitable for Bald Eagle, Peregrine Falcon, Wolf, Grizzly Bear, Lynx, Boreal Owl, Northern Bog Lemming, or Black-backed Woodpecker.</p> <p>The project contains potential Flammulated Owl and Pileated Woodpecker habitat.</p> <p>Flammulated Owls prefer open (35 - 80 sq. ft. basal area/acre) stands of Ponderosa pine that are 50+ acres in size. The current 62 acre stand has 109 sq. ft. basal area/acre. The proposed leave stand would retain approximately 46 sq. ft. basal area per acre, in 40+ trees/acre 6" - 29" dbh, with an estimated 15+ trees per acre $\geq 17"$ dbh. The proposal would improve Flammulated Owl habitat.</p> <p>Pileated Woodpecker prefer older stands of large diameter trees, including Ponderosa Pine, with snags and down woody material. The existing stand, with 36+ trees/acre $> 15"$ dbh is potential Pileated habitat, but currently lacks nesting snags and large down woody material for foraging; rendering the area unsuitable for Pileated use at this time. The current stand is in an early mature stage. The avg. age of trees $> 6"$ dbh is 86 yrs, for large trees $\geq 17"$ dbh the avg. age is 113 yrs. The proposal would retain 15+ trees/acre $> 15"$ dbh, and does not propose to cut any existing snags. The project stand would continue to have the potential to develop into Pileated habitat as it matures.</p> <p>No fragmentation of wildlife habitats would occur. Minor positive impacts to Pileated Woodpecker and Flammulated Owls may occur.</p>
<p>10. HISTORICAL AND ARCHAEOLOGICAL SITES: Are any historical, archaeological or paleontological resources present?</p>	<p>[Y] There are signs of human activity, primarily access trails and small scale mining prospect pits and mounds, scattered throughout the area. No historical or archaeological resources are documented, nor have any been observed. Activities proposed for the project would not adversely affect any cultural resources.</p>
<p>11. AESTHETICS: Is the project on a prominent topographic feature? Will it be visible from populated or scenic areas? Will there be excessive noise or light? Are cumulative impacts likely to occur as a result of this proposed action?</p>	<p>[Y] The area is adjacent to high density subdivision areas in section 16 and sections 20 and 21. The area is also mostly visible from I-15 and other subdivision areas east of the highway. (A stand of trees along the stream which are not included in the proposal would partially screen about 1/2 of the area from the view on I-15.)</p> <p>The proposed thinning treatment would maintain an open stand of relatively large diameter Ponderosa Pine trees. This stand structure is generally considered to be aesthetically pleasing. None of the adjacent landowners have raised aesthetics as an issue. No cumulative visual impacts expected.</p>
<p>12. DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AIR OR ENERGY: Will the project use resources that are limited in the area? Are there other activities nearby that will affect the project? Are cumulative impacts likely to occur as a result of this proposed action?</p>	<p>[Y] An issue unrelated to the proposal is the legal status of the two-track road through the State land. An old stage route, and subsequent county road passed through the tract along a route only vaguely documented in the public record. Jefferson county officially abandoned the route in 1931. County/Public right-of-ways have been re-established up to the State property line to service the adjacent subdivisions. The nearby landowners have voiced split opinions regarding the re-establishment of a route across the State land. The Department's position is that there is no current public route across the State tract, and it would not be in the best interest of the School Trust to establish one. There is currently a case in District Court to address this issue. The outcome of the case would not directly affect this project proposal, but could affect traffic conditions through the tract. No cumulative impacts are likely to occur as a result of this proposal.</p>

<p>13. OTHER ENVIRONMENTAL DOCUMENTS PERTINENT TO THE AREA: Are there other studies, plans or projects on this tract? Are cumulative impacts likely to occur as a result of other private, state or federal current actions w/n the analysis area, or from future proposed state actions that are under MEPA review (scoping) or permitting review by any state agency w/n the analysis area?</p>	<p>[N]</p>
<p>III. IMPACTS ON THE HUMAN POPULATION</p>	
<p>RESOURCE</p>	<p>[Y/N] POTENTIAL IMPACTS AND MITIGATION MEASURES</p>
<p>14. HUMAN HEALTH AND SAFETY: Will this project add to health and safety risks in the area?</p>	<p>[N] One of the project objectives is to reduce the risk of wildfire, and the associated risks to health and safety that result during high intensity fire events. Please refer to the attached report on project area fire history.</p> <p>The Evergreen Health Center is located within ½ mile of the project area. To ensure no air quality risk for the residents on respirators, the project proposal would utilize non-burning slash disposal treatments.</p>
<p>15. INDUSTRIAL, COMMERCIAL AND AGRICULTURAL ACTIVITIES AND PRODUCTION: Will the project add to or alter these activities?</p>	<p>[N] The project is not associated with any other activities.</p>
<p>16. QUANTITY AND DISTRIBUTION OF EMPLOYMENT: Will the project create, move or eliminate jobs? If so estimated number. Are cumulative impacts likely to occur as a result of this proposed action?</p>	<p>[N] People are currently employed in the wood products industry in the region. Due to the relatively small size of the timber sale program, there will be no measurable cumulative impact from this proposed action on employment.</p>
<p>17. LOCAL AND STATE TAX BASE AND TAX REVENUES: Will the project create or eliminate tax revenue? Are cumulative impacts likely to occur as a result of this proposed action?</p>	<p>[N] People are currently paying taxes from the wood products industry in the region. Due to the relatively small size of the timber sale program, there will be no measurable cumulative impact from this proposed action on tax revenues.</p>
<p>18. DEMAND FOR GOVERNMENT SERVICES: Will substantial traffic be added to existing roads? Will other services (fire protection, police, schools, etc) be needed? Are cumulative impacts likely to occur as a result of this proposed action?</p>	<p>[N] There will be no measurable cumulative impacts related to demand for government services due to the relatively small size of the timber sale program, the short-term impacts to traffic, the small possibility of a few people temporarily relocating to the area, and the lack of other timber sales in the adjacent area.</p>
<p>19. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS: Are there State, County, City, USFS, BLM, Tribal, etc. zoning or management plans in effect?</p>	<p>[Y] In June 1996, DNRC began a phased-in implementation of the State Forest Land Management Plan (Plan). The management direction provided in the Plan comprises the framework within which specific project planning and activities take place. The Plan philosophy and appropriate Resource Management Standards have been incorporated into the design of the proposed action.</p>
<p>20. ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES: Are wilderness or recreational areas nearby or accessed through this tract? Is there recreational potential within the tract? Are cumulative impacts likely to occur as a result of this proposed action?</p>	<p>[Y] The tract is accessible for general recreational use, provided the persons possess a valid State Land Recreational Use License. All access must be by non-motorized methods. Some big game hunting likely takes place on the tract, and would continue with or without the project, at similar low levels.</p> <p>No direct or cumulative adverse affects to recreational use are expected.</p>
<p>21. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING: Will the project add to the population and require additional housing? Are cumulative impacts likely to occur as a result of this proposed action?</p>	<p>[N] There will be no measurable cumulative impacts related to population and housing due to relatively small size of the timber sale program, and the fact that people are already employed in this occupation in the region.</p>

22. SOCIAL STRUCTURES AND MORES: Is some disruption of native or traditional lifestyles or communities possible?	[N]
23. CULTURAL UNIQUENESS AND DIVERSITY: Will the action cause a shift in some unique quality of the area?	[N]
24. OTHER APPROPRIATE SOCIAL AND ECONOMIC CIRCUMSTANCES: Is there a potential for other future uses for easement area other than for timber management? Is future use hypothetical? What is the estimated return to the trust. Are cumulative impacts likely to occur as a result of this proposed action?	<p>[Y] As noted in item 12 above, there is a current court case to determine the re-establishment of a public route across the State tract. If the State is unable to successfully defend its position, then a public route may result, with no return to the Trust. This issue is currently outside of the Department's decision making authority.</p> <p>The following costs, revenues, and estimates of return are intended for a relative comparison of the alternatives. They are not intended to be used as absolute estimates of return. Stumpage values for the sawlog material were estimated using a residual value method, values for roundwood products were based upon comparable sales. The estimated stumpage value in a residual value analysis equals the estimated delivered log price minus operating costs. Operating costs include logging costs, hauling costs, forest improvement costs and fees, development costs, other costs (e.g. BMP implementation, and weed management), and "profit & risk" (the return to the timber buyer that accounts for actual time and effort, some profit for entrepreneurial spirit, and something to cover the potential losses from the occasional sale which is not profitable). The estimated minimum stumpage values for this project are \$90.82/MBF for sawlog material and \$1.00/ton for roundwood material. The proposed thinning project would result in the harvest of an estimated 241 MBF of sawlog size material and an estimated 1100 tons of roundwood products. The proposed action would generate \$22,000 to \$50,000 of return to the trust, above that generated by the No Action (current) alternative. (No estimates of potential losses to the trust from insects, disease, or fire, which could result from a long term application of the No Action alternative, have been calculated or included in the above estimates.)</p>
EA Checklist Prepared By: D.J. Bakken Forester 4/30/2002 IV. FINDING	
25. ALTERNATIVE SELECTED:	I have selected the proposed Action Alternative to conduct commercial and pre-commercial thinning operations on approximately 62 acres during the winter months, mechanically treat the resulting slash and to conduct pre and post harvest weed management activities.

26. SIGNIFICANCE OF POTENTIAL IMPACTS:

As a result of my review of the Environmental assessment, supporting documentation, comments received from concerned individuals, interest groups and resource management specialists as well as my field review of the project area, I conclude significant impacts are not expected to occur as a result of implementing the proposed action. My rationale for reaching this conclusion is based on the following:

The proposed thinning encompasses a small 62 acre area of ponderosa pine that has become overstocked with small diameter trees. The thinning would retain most of the larger diameter trees and result in an open stand of ponderosa pine that is similar to stand conditions in which ponderosa pine has historically grown.

There is no old growth within the project area as defined by any of the old growth definitions currently used by the scientific community, including Green, et al. The post harvest stand would retain large diameter trees to maintain the potential to develop old growth characteristics in the future.

The state land is surrounded by high density residential development and bordered on one side by Interstate 15. Consequently it's value for wildlife species that prefer secluded or semi-secluded habitats is quite low. Recommendations by the DFWP biologist to preserve some wildlife travel corridors within the project area have been incorporated in the project design.

There are no rare, unique conditions or habitats for any Threatened or Endangered Species within the project area.

The terrain is gentle and well suited for the proposed activity. Operations are planned to be conducted during the winter when soils will either be frozen or snow covered to minimize site disturbance.

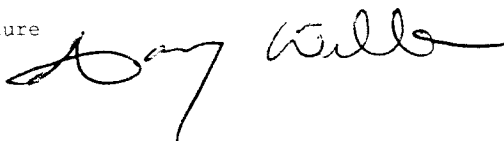
There are no streams as defined by the Streamside Management Law or surface water in the project area and there is no direct delivery connectivity to streams outside the project area.

No new road construction is planned under the proposal.

27. Need for Further Environmental Analysis: ☐ EIS ☐ More Detailed EA ☒ No Further Analysis

EA Checklist Approved By: Garry Williams Manager Forest and Lands Programs (LL)

Signature



Date

5/29/02

TO: DJ Bakken, Forester, Central Land Office

cc: Garry Williams, Manager, Central Land Office
Jeff Collins, Soil Scientist, Resource Mgmt. Section
Gary Frank, Supervisor, Resource Mgmt. Section
Bruce Rowland, Supervisor, State Land Management Section

FROM: George Mathieus, Hydrologist, Resource Mgmt. Section

SUBJECT: Prickly Pear Creek Proposed Timber Sale Write-up

DATE: December 13, 2001

Existing Conditions/Effects Analysis
Prickly Pear Creek Proposed Timber Sale
Section 16, T8N-R3W
Central Land Office

INTRODUCTION

The following document contains background information for the watershed and soils portion of the proposed Prickly Pear Creek Timber Sale Environmental Assessment. This analysis includes an existing conditions and effects assessment of all watercourses draining the proposed sale area. Write-up and assessments are based on a coarse filter screening approach and an on-site field review of all contributing areas within the proposed sale area.

POTENTIAL ISSUES

Soil Resources:

Equipment operations and timber harvest on steep slopes or sensitive soils can result in soil impacts that effect soil productivity depending on area and degree of physical effects and amount or distribution of coarse woody debris retained for nutrient cycling.

Noxious Weeds:

Following disturbance events such as timber harvest activities, invasion and spread of noxious weeds is more prevalent than in undisturbed areas. Noxious weed invasion and spread detrimentally influences surface cover, erosion and native species growth.

Cumulative Watershed Effects:

Cumulative watershed effects can be characterized as impacts on water quality and quantity that result from the interaction of disturbances, both human-caused and natural. Timber harvest can affect the timing of runoff, increase peak flows and increase the total annual water yield of a particular drainage.

AFFECTED ENVIRONMENT

The proposed sale area lies within one state section surrounded by private lands. Precipitation ranges from 10-15 inches per year. There are no perennial streams draining the proposed sale area, it consists of ephemeral draws and coulees with only infrequent minor surface flows for short durations. These ephemeral tributaries all drain into Prickly Pear Creek, a tributary to the Missouri River.

Regulatory Framework:

This portion of the Missouri River basin is classified B-1 in the Montana Water Quality Standards. Waters classified B-1 are suitable for drinking, culinary and food processing purposes after conventional treatment; bathing, swimming and recreation; growth and propagation of salmonid fishes and associated aquatic wildlife, waterfowl and furbearers; and agricultural and industrial water supply. State water quality regulations prohibit any increase in sediment above naturally occurring concentration in waters classified B-1 (ARM 16.20.618 2(f)).

Naturally occurring means conditions or materials present from runoff or percolation over which man has no control or from developed land where all reasonable land, soil and water conservation practices have been applied. Reasonable land, soil and water conservation practices include methods, measures or practices that protect present and reasonably anticipated beneficial uses. The state of Montana has adopted Forestry Best Management Practices (BMPs) through its Non-point Source Management Plan as the principal means of meeting Water Quality Standards.

Existing beneficial uses in the immediate vicinity of the proposed sale area include the following water rights for groundwater sources: domestic, geothermal heating, lawn & garden, stock, multiple domestic, commercial, geothermal, institutional and municipal uses. Surface water sources include, geothermal heating, commercial and mining uses. Outside of the analysis area, downstream beneficial uses include aquatic life support and cold-water fisheries.

The Clean Water Act and EPA Water Quality Planning and Management Regulations requires the determination of allowable pollutant levels in 303(d)-listed streams through the development of Total Maximum Daily Load (TMDL) limits. There are no water quality limited segments (WQLS) within the project area (as per Section 303(d) of the Clean Water Act) in the 305(b) report. Prickly Pear Creek is currently listed as a WQLS. Causes of impairment are Arsenic and other metals with the probable sources being abandoned mining tailings.

Water Quality:

There are no streams draining the proposed sale area. It consists of ephemeral draws and swales with only minor seasonal flow.

Fisheries:

Due to the ephemeral nature of the stream channels and disconnectivity to Prickly Pear Creek and ultimately the Missouri River, no fish species are present within the analysis area.

Soil Resources:

The proposed sale area is located on moderate to flat slopes with shallow to deep soils weathering from granitic bedrock of the Boulder Batholith. There are no unusual or unique geologic features in the proposed harvest area. Slopes within the sale area are moderate, ranging from 5-30%, with isolated steeper breaks along draw features. There were no signs of slumping or mass wasting.

Primary soils within the proposed harvest area are Shaboom/Kellygulch extremely boldery sandy loams of shallow to moderate depth on most slopes. Rock outcrops occur on ridges and convex slopes. These soils are droughty and subject to erosion where disturbed.

Soils along the flatter slopes and fan features are Hiore-Clugulch very bouldery sandy loams. These soils are more productive than the steeper slopes within the state section and have a longer season-of-use. These soils are sensitive to rutting and displacement if operated on during wet periods.

Approximately 1.0 mile of road provides access to the sale area. This road system contains, blacktop, low standard gravel road and two-track. The gravel road meets current BMP standards, while the two-track does not. The existing road system does not appear to be a source of potential erosion and sediment delivery to any stream channels. There are no perennial stream channels adjacent to the existing road.

Noxious Weeds:

Spots of thistle (*Cirsium arvense*) and spotted knapweed (*Centaurea maculosa*) occur within the project area mainly along the existing roads. No real outbreaks or large infestations were noted within the project area.

Cumulative Watershed Effects:

Past management activities in the general vicinity include grazing; fire suppression, road construction, development and timber harvest.

A cumulative watershed effects analysis for the proposed sale was completed to determine the existing conditions of the affected environment. Due to the low precipitation region, ephemeral nature of the stream channels a smaller, more defined boundary was selected for the analysis area. This analysis area was selected because it was determined to be the most appropriate scale to detect potential effects.

All drainage features and draw bottoms draining the proposed sale area were evaluated in the field. All tributaries to Prickly Pear Creek, within the State section, have no surface connectivity or any perennial flow.

Field evaluation concludes that past management activities have resulted in impacts to soil resources. These impacts have been limited to erosion from existing roads and cattle trampling.

ENVIRONMENTAL CONSEQUENCES

The proposed timber sale is comprised of one action alternative. This alternative would selectively treat approximately 62 acres. No new roads would be constructed with this proposal. Portions of the 1.0 miles of existing road would be improved to meet BMP standards.

Noxious Weeds:

No Action Alternative:

Under the No Action Alternative, weed seed may spread by vehicle traffic, wind and animal dispersion into the project area, which would result in competition with native species trying to establish in recently disturbed areas.

Action Alternative:

Ground disturbing activities associated with the proposed action alternative have the potential to introduce or spread noxious weeds in susceptible habitat types. Under the Action Alternative, DNRC would follow an integrated weed management approach to help prevent the introduction and establishment of noxious weeds and slow the expansion of existing weeds.

Cumulative Effects of Noxious Weeds:

Invasion and spread of noxious weeds would decrease soil productivity and stability and reduce the reestablishment of native species. A combination of prevention, revegetation and monitoring will be implemented to reduce the possible infestation and spread of weeds associated with this project.

Soil Resources:

No Action Alternative:

Under the No-Action alternative, there would be no direct effects to soils or geology. Segments of existing roads with inadequate drainage identified in the affected environment would continue to erode without future mitigation and/or maintenance.

Action Alternative:

Due to the ephemeral nature of the draws and the low annual precipitation within the sale area, the proposed activities have a low potential to contribute to the degradation of water quality. The primary water and soil concerns associated with the proposed timber sale activities are sediment delivery to the draws, erosion of soil and subsequent loss of site productivity. Vegetative regrowth is a critical factor in avoiding long-term soil erosion from harvest activities. Season-of-use and skidding restrictions would minimize impacts to soil resources.

Cumulative Effects to Soil Resources:

Portions of the existing low standard road systems would be improved under the proposed action to a standard that meets minimum BMPs. Improvements to this road system are expected to decrease existing and future risk of sediment delivery to draws and subsequent erosion.

Proper application of BMPs and site-specific designs and mitigation measures would reduce future erosion and potential water quality impacts to an acceptable level as defined by the water quality standards. Acceptable levels are defined under the Montana Water Quality Standards as those conditions occurring where all reasonable land, soil and water conservation practices have been applied. There is little risk of adverse impacts to soil resources, water quality and beneficial uses occurring as a result of the proposed action alternatives.

Cumulative Watershed Effects:

No Action Alternative:

The no-action alternative would have minimal effects to cumulative watershed effects. Moderate timber management activities in the surrounding drainage's and the range-like landscape have resulted in undetectable cumulative watershed effects.

Action Alternative:

There are no cumulative watershed effects constraints associated with the proposed sale area. This is due to the following reasons:

- Low precipitation region.
- No perennial streams.
- No new road construction.
- The proposal is for a selective harvest in stands that are overstocked from that of natural, pre-fire suppression stands.

CONTRACT, SALE & MITIGATION DESIGN RECOMMENDATIONS

General Road Design and Mitigation Recommendations:

- Construct drain dips, grade rolls and other drainage features where necessary and practical to insure adequate road surface drainage. **Install and maintain all road surface drainage concurrent with new road construction, reconstruction and reconditioning.** Drain dips constructed on sustained road grades greater than 8% may require gravel surfacing to function properly. Sustained road grades greater than 10% may require installation of conveyor belt water diverters.
- Stabilize newly constructed road cuts and fills following excavation. Stabilization can be met through one or more of the following: seeding, benching or mulching. Apply seed as soon as conditions permit to maximize successful establishment of grass cover. Local professional judgement and consideration for temperature and precipitation would determine when seeding is likely to be most successful. Delay of seeding may require scarification of crusted soils.
- Leave all temporary or abandoned roads in a condition that will provide adequate drainage and will not require future maintenance. Partially obliterate abandoned roads through ripping and seeding. Where it is available, scatter slash across the ripped road surface. Install water bars at regular intervals to facilitate surface drainage.
- Provide effective sediment filtration through the use of slash filter windrows, filter fabric fencing or straw bales along drainage features located in areas with inadequate buffer capacity. Note: straw bales alone may not be effective in areas with heavy concentrations of livestock or big game.
- Where potential erosion exists at the outlet of drainage features, provide outfall protection using slash and/or coarse angular rock.
- Filter ditches with direct delivery to ephemeral draws at the outlet by using slash, or filter fabric and straw bales.
- Incorporate a filtering mechanism at all ephemeral draw crossings requiring fills that are greater than 2 feet deep. This may include slash filter windrows, filter fabric fencing, straw bales or rock, depending on feasibility of materials and characteristics of the site. Ensure that method used is keyed into the toe of road fill.
- When excavating material in and around ephemeral draw crossings (i.e. cleaning inlets and outlets, constructing ditches, etc.) Special care should be taken so as not to cause an excessive amount of disturbance to the draw bottom or area immediately adjacent to the crossing sites. Excess or waste material should be disposed of at a location where it will not erode directly into the stream or draw bottom.
 - Limit road use and hauling to dry, frozen or snow covered conditions. **Suspend operations during periods before rutting occurs.**

Noxious Weeds:

- Clean all road construction and harvest equipment of plant parts, mud and weed seed to prevent the introduction of noxious weeds. Equipment would be subject to inspection by forest officer prior to moving on site.
- Re-seed all newly disturbed soils on road cuts and fills to site adapted grasses for reduction of weed encroachment and stabilization of roads

- Weed control would be implemented according to the weed plan outlined in the environmental assessment. Monitor the project area for two years after completion of harvest activities to identify occurrence of any noxious weeds on site.

General Design and Mitigation Recommendations for Harvest Units:

- Implement equipment restriction zones (ERZ) along deeply incised ephemeral draws.
- In all units, designate ERZs below slope breaks > 45%. These areas shall require directional felling and winching as designated by the forest officer.
- Develop a skidding plan prior to equipment operations. Skid trail planning would identify which main trails to use, and what additional trails are needed. Trails that do not comply with BMPs (i.e. draw bottom trails) should not be used and closed with additional drainage installed where needed or grass seeded to stabilize the site and control erosion.
- Slash would be trampled and chipped in the woods and spread over skid trails to help reduce erosion and enhance seedling growth.
- Leave 5-10 tons/acre of coarse woody debris on the ground to enhance seedling growth and maintain long-term overall soil productivity.

PRICKLY PEAR PROJECT Vegetative Analysis

The DNRC is proposing forest management (commercial thinning operations) in the area south of Alhambra, MT. The state owns the south half, and the W½NW¼ Section 16, T8N, R3W, less the interstate and highway right-of-ways. In whole, we usually refer to this tract as the Warm Springs Creek tract. This project proposal is limited however to a single forest stand in the W½SW¼ of the section and will be referred to as the Prickly Pear Project. The SFLMP recommends a third order drainage basin for vegetative analysis of the landscape surrounding a project area on scattered trust lands. However, in this case, the project area lays within 1st and 2nd order drainages which deliver directly into Prickly Pear Creek, so a grouping of these drainages have been selected as a representative analysis area.

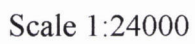
The analysis area boundary begins at the south line of Section 16, at the west right-of-way boundary of I-15, thence westerly up the ridge line to Windy Butte, thence north westerly along the ridgeline to a point in the S½ Section 18, thence north easterly along the ridgelines to a peak (4995') in the SE¼ Sec. 8, thence south easterly down the ridgeline to the south side of Alhambra and the I-15 right-of-way in the north central portion of Section 16, thence south along the I-15 right-of-way to the point of beginning. This analysis area encompasses 1276 acres, more or less. Ownerships within the analysis area include 213 acres of state land (public school trust) and 1063 acres private.

State land in the analysis area includes the following:

<u>Stand</u>	<u>Acres</u>	<u>Type</u>	<u>Notes</u>
1	42	P7P	Burned by wildfire in 1961
2	54	P9MP	Underburned by wildfire in 1961
3	18	NF	Brushy area near stream
11	16	NF	
12	12	P9W	SMZ and adjacent
13	<u>71</u>	P9WM	Includes the 62 acre project area
	213		

Section 16, T8N, R3W

Section 16, T8N, R3W



to Jefferson City

State land forest habitat types in the analysis area are all Ponderosa pine, some Bluebunch wheatgrass, some Idaho Fescue (Pipo/Agsp & Feid). The average site index in the project area is 42.5. The average tree age is 86.5, with a range for mature size trees of 50-120 years. There are several hundred/ac., in some patches thousands/ac., of seedlings and saplings 0-40 years old.

One old tree was observed and documented at 211 years. (Thirteen sample plots systematically located across the project area included age samples on 22 trees. The oldest tree observed was 211 years. A second tree, which exhibited old tree form characteristics, was sampled twice and confirmed to be only 103 years old.) This age distribution coincides with the land use history of this area. The project area was mined in the late 1800's, early 1900's, and was readily accessible along an old stage and rail line.

Green et.al. provide the following basic characteristics for Old Growth Ponderosa Pine, the conditions in this stand are included for comparison.

	<u>Green Minimum</u>	<u>This stand</u>
TPA \geq 17" dbh	4	28.8
Large tree age avg.	>180	113
BA/ac. (\geq 6" dbh)	>40 sq.ft.	111
Snags/ac.	9	0.5
Down logs >9"/ac.	low to moderate	almost none

The project area stand is not Old Growth, based upon these observations.

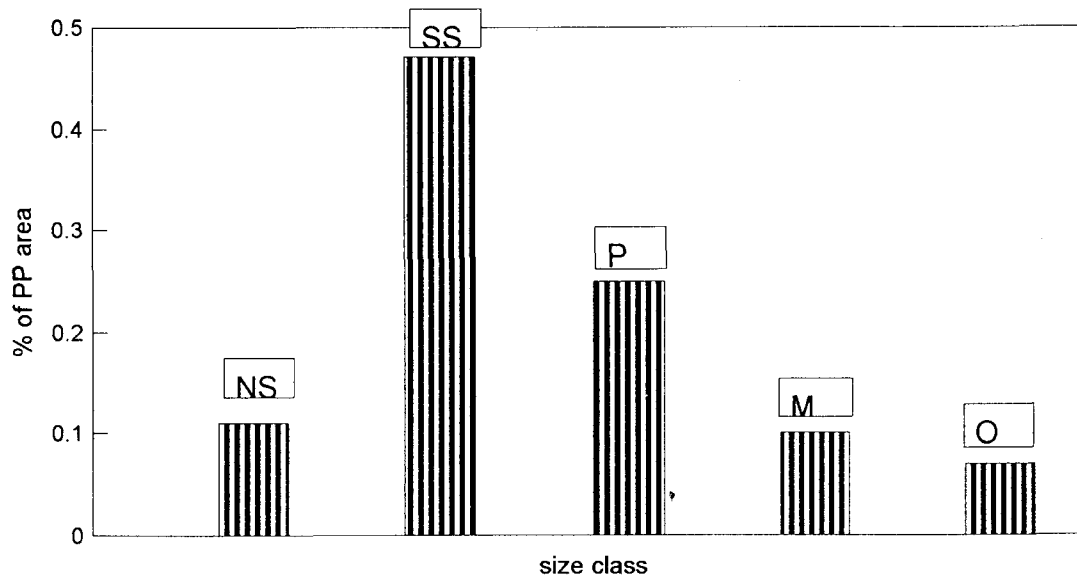
The 1997 Losensky report analyzed historic (early 1900's) forest inventory data to estimate forested acreage and age class distributions. The Helena Unit, and the Prickly Pear Analysis area, lay within climactic zone M332D. The Losensky report found that a historic condition for the 11% of the zone classified as Ponderosa Pine forest included 7% of acreage old (\geq 171 years), 10% mature, 25% pole size, 47% seedling/sapling and 11% nonstocked. Ponderosa pine in this area typically occupies the drier lower slope positions, adjacent to valleys. Frequent low intensity wildfire is thought to have been the principle disturbance responsible for this historic age class distribution. (see Figure 1)

Based upon inventory data for Helena Unit lands compiled as of 1/26/01, the age distribution of Ponderosa Pine includes 22.35% old (\geq 151 yrs.), 58.91% mature, 10.03% pole size, 5.24% seedling/sapling and 3.48% nonstocked. It is probable that a combination of land use practices and fire suppression activities have caused this significant abnormal skewing of Ponderosa Pine age distributions. (See Figure 2) Current stocking of mature and old Ponderosa Pine stands are nearly 5 times the historic level for this area.

The project stand, at an average large tree age of 113 years, is just in the early mature age range. Current growth is still relatively good, but will begin to decline rapidly now that understory stocking is reaching full occupancy of the site.

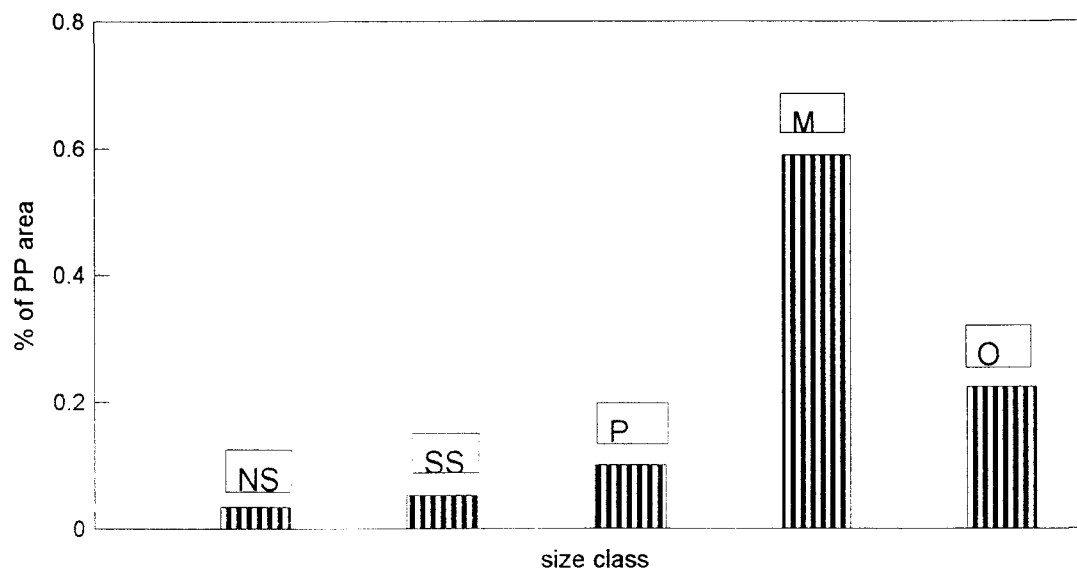
size class		nonstocked	seed/sap	pole	mature	old
age range		0	1 - 40	41 - 100	101 - 170	171 +
% of type	CT2 PP	11.00%	47.00%	25.00%	10.00%	7.00%
% of area	8% total	0.88%	3.76%	2.00%	0.80%	0.56%

Historic PP age dist. in M332D



size class		nonstocked	seed/sap	pole	mature	old
age range		0	1 - 40	41 - 100	101 - 150	151 +
% of type	PP	3.48%	5.24%	10.03%	58.91%	22.35%
% of area	15.34% total	0.53%	0.80%	1.54%	9.03%	3.43%

2001 PP age Dist. Helena DNRC



The private lands within the analysis area include areas of high density subdivision and rural range and forest land. Private lands include approximately 243 forested acres, with the balance of 820 acres being nonforested, or non stocked since the 1961 fire.

The forest stand proposed for thinning has 1593 total trees/ac., with 139 over 6" dbh. Basal area for all trees is 123.3 sq. ft. The stand exhibits an irregular dense, multi-layered canopy which would not be typical for a Ponderosa Pine stand on these habitat types under natural conditions. The adjacent stand north of the project area was under burned by the fire of 1961 and is more characteristic of a natural Ponderosa Pine stand condition. The next stand north experienced a stand replacing fire at that same time and is currently poorly stocked with Ponderosa pine seedlings/saplings, which have regenerated naturally following the blaze. The project stand in its overstocked and stressed condition is at an elevated risk for stand replacing wildfire and/or insect (Mountain Pine Beetle) attack. The adjacent housing developments pose a considerable value at risk of wildfire.

Noxious weeds, specifically spotted knapweed and dalmation toadflax, are present on the project area, and all surrounding lands. The knapweed in particular is well established in most open areas, and is present in trace amounts throughout the stand. Management actions for well established category 1 noxious weeds should include containment and suppression of existing infestations and prevention of new infestations.

Current forage production on the lease west of I-15 is 32 AUM on 213.1 acres (L-7611). During the previous lease cycle (1990-99) the capacity was rated at 34 AUM, from 1980-89 it was listed at 57 AUM. This trend is most likely due to a combination of Ponderosa Pine encroachment and fill in stocking and noxious weed infestation. The attached page shows the 1955 and 1991 aerial photographs of the section.

Conclusions:

The proposed project area appears to be more heavily stocked than would be expected for a natural condition. Regional Ponderosa Pine age distributions are uncharacteristically shifted toward mature and old age classes. Considering this alone would indicate an evenaged regeneration harvest. However, the project stand is only in the early mature stages and likely has not yet reached culmination of annual volume increment. Management actions which would reduce seedling/sapling and pole size stocking levels in the understory, while maintaining a broadly unevenaged stand of relatively large diameter trees may be appropriate. Some weed control activities should be implemented.

11-5-01
D.J. Bakken
Forester

Dh



Figure 1, Prickly Pear area 1955

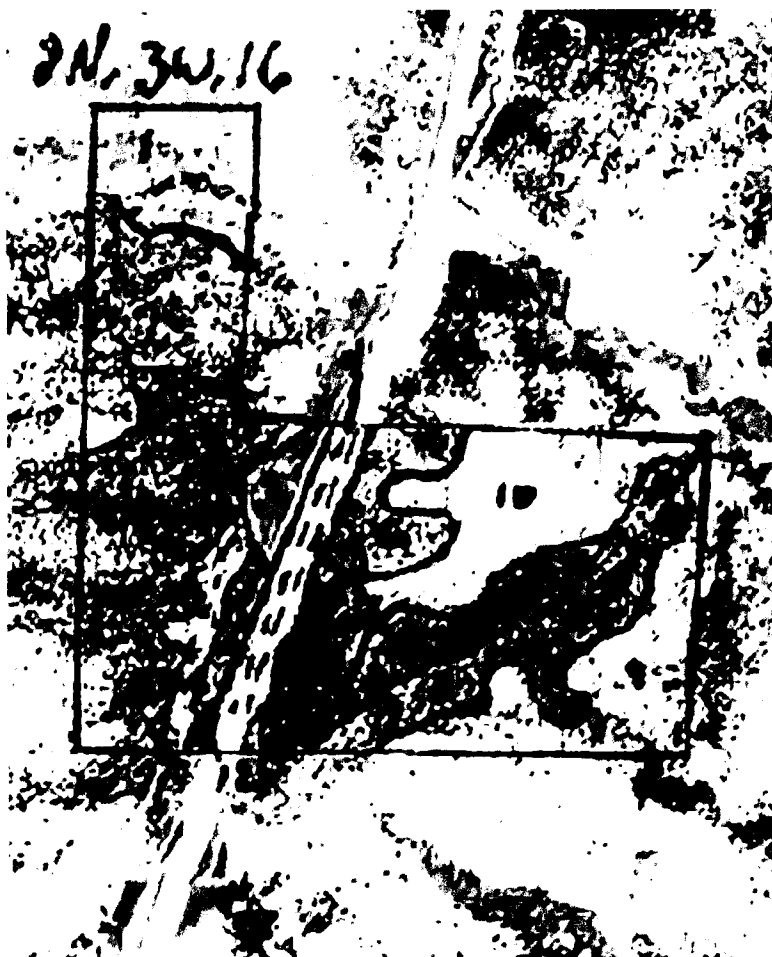


Figure 2, Prickly Pear area 1991

-----Original Message-----

From: Joslin, Gayle
Sent: Friday, January 04, 2002 5:29 PM
To: Bakken, D.J.
Cc: Korn, Mike (HARO); Peterson, Joel
Subject: Alhambra Timber Sale

D.J. -

Thanks for the tour yesterday of the Alhambra project site. As we discussed, if it is possible to leave clumps of trees in the pole stands, and stringers of larger trees where they tend to be anyway, the integrity of movement routes along the ephemeral drainages will be retained to some degree and thermal cover will be retained to a larger degree than if the area were left with evenly trees distributed. At least 40 trees per acre is important, even though that stocking rate will not achieve the canopy coverage necessary to achieve 70% that is ideal for thermal cover, if the trees are left in clumps and stringers, wildlife will be able to make better use of them and microclimates will exist in these overstory arrangements that would not otherwise be achieved.

Please take all measures to ensure that traffic does is not allowed through this area connecting adjacent subdivisions. The impacts to wildlife from these adjacent developments are taking their toll already as evidenced by the tracks of dogs in the snow. Traffic would add to the severity of the situation for wildlife.

Sorry to be so brief, but I promised a response to you soon.

Gayle Joslin
Wildlife Biologist
Helena Area Resource Office
Montana Fish, Wildlife & Parks

*For in the end we will conserve only what we love.
We will love only what we understand.
And we will understand only what we are taught.*

~ Baba Dioum, African Conservationist ~

PRICKLY PEAR PROJECT AREA

Fire History

The Prickly Pear Project Area lays within the boundary of the Helena Forest Fire Protection District (est. 1977) and partially within the Clancy Fire Services Area, and the boundaries of the Jefferson City Volunteer Fire Company. Jefferson County is also included in the State-County Cooperative Fire Program, initially in 1970, revised in 1979 and 1986. Since 1977, the State of Montana has kept fire records for this area. (Records since 1981 are in a computer database maintained by the Fire & Aviation Management Bureau in Missoula.) Fires are categorized by size as follows:

<u>Size Class</u>	<u>Acreage</u>
A	0 - .25
B	.26 - 9
C	10 - 99
D	100 - 299
E	300 - 999
F	1,000 - 4,999
G	≥ 5,000

Since 1981, there have been nine fires within one mile of the Prickly Pear Analysis area. There have been two size class G fires within ten miles of the project area. (Warm Springs Creek, 1988, and Boulder Complex, 2000)

On lands outside of the USFS boundary¹ within T8N, R3W, there have been 30 wildland fires since 1981. These occurrences would all have been within 3.5 miles of the project area.

Prior to state record keeping, there was a large (category F or G) fire in 1961 which burned into the project area.

Historically, initial attack efforts have been successfully able to suppress most of the fires in this area at a small size. In the few instances where this did not occur, large catastrophic fires resulted.

During the last decade, the Northern Rockies have experienced several seasons of increased fire occurrence and acreage burned. The three dominant causes cited for this trend are prolonged droughty periods, increased forest fuel levels and the presence of urban interface areas. (Urban interface areas pose an increased risk of human caused fire)

¹Records of fires within the USFS boundary are maintained by the Helena National Forest for this area. These records were not reviewed as part of this analysis.

ignition, and defensive activities to protect lives and property can inhibit suppression actions resulting in larger fires.)

The vegetative analysis for the Prickly Pear project area has documented a significant increased stocking level in these forest stands from 1955 to the present (the only exception being those stands still poorly stocked following the 1961 burn). Subdivision activity since the early 1960's has resulted in numerous homes being constructed in this analysis area.

Increased forest stocking levels, increased levels of urban interface, and a history of fire starts averaging more than one a year for the area, cumulatively yield a relatively high fire risk for the project area. Preventive forest management treatments (thinning in this case), being the only factor directly within DNRC control, would be recommended to reduce fire risk.

A September 2001 study by the University of Montana (A Strategic Assessment of Fire Hazard in Montana, Carl Fieder, et al.) evaluated existing crown fire risk and management strategies for its prevention. For this study, the indicator used to rank crown fire risk was the crowning index. Crowning index is the estimated wind speed needed to carry a crown fire through a specified forest stand. If a low wind speed/crowning index is estimated, the stand would be considered high risk, high wind speeds would be low risk. For this study, high risk had a crowning index of <25 mph, medium 26-50 mph and low risk >50 mph. A variety of stand species, canopy structures and treatment prescriptions were evaluated.

The existing project area is Ponderosa Pine, high density (>75 sq. ft. BA/ac) with a mix of two storied and multi-storied canopy configurations. The study predicted crowning index values for this type of stand to be 21 mph (2 storied) to 19 mph (multi-storied), for stands east of the continental divide.

The treatments proposed for this area would retain approximately 46 sq. ft. of Basal area per acre across nearly all tree sizes 6" and larger. This prescription would approximate the comprehensive treatment evaluated in the University of Montana study. The study estimated crowning index following a comprehensive treatment to increase to 76 mph (2 storied) to 80 mph (multi-storied). (In contract, a treatment thinning from below, removing trees <9" dbh, would only increase crowning index to 38 mph and 35 mph respectively.) The study further estimated that 75% of stands treated with a comprehensive prescription would retain their low risk rating 30 years post treatment.

The proposed treatment for the Prickly Pear Project area should achieve the objective of reducing hazardous forest fuel conditions.

DJ Bakken
01/16/02

ADOPTION OF STATE FOREST LAND MANAGEMENT PLAN (SFLMP)

ADMINISTRATIVE RULES

ENVIRONMENTAL ASSESSMENT

March 2003

Finding

ALTERNATIVE SELECTED

I have carefully reviewed this environmental assessment and have selected Action Alternative C to adopt formal rules with minor deviations from RMS wording contained in the SFLMP Record of Decision (May 30, 1996). These are programmatic rules that provide policies and direction for managing state-owned forestlands. The rules contain general philosophies, management standards and more detailed procedures that direct the manner in which project-level decisions will be reached. The rules deviate little from the original SFLMP RMSs. They remain consistent with the SFLMP premise and philosophy, but they remove the department's numeric criteria for retention of old growth. The old growth commitment was removed due to conflicts with recent state law, in particular 77-5-116, MCA. The rules do not address site-specific issues, make specific land use allocations or identify precise future output targets for individual resources. The Action Alternative provides the best currently available approach for meeting department needs for consistent direction. While continuing management under the No Action approach is possible, the adoption of forest management rules will provide forest managers with more detailed procedures that help improve clarity and reduce ambiguity when making project-level decisions. They will also provide the public with detailed information on implementing the department's management philosophy. The rules as adopted, will not substitute for public involvement, proper analysis, and documentation in future project-specific decisions.

SIGNIFICANCE OF ENVIRONMENTAL IMPACTS

I have reviewed the analysis contained in this EA and have compared it with the seven Significance Criteria (ARM 36.2.524). Due to the low potential for identifiable and measurable impacts of any form, I find that the alternative chosen will not have a significant effect on the human environment.

NEED FOR FURTHER ENVIRONMENTAL ANALYSIS

The selected level of review under MEPA is appropriate for this proposal and no significant effects to the human environment are anticipated. An Environmental Impact Statement is not necessary and shall not be prepared.

Approved By:

Signature Peter S. Van Sickle

Date: 3/7/03

Peter S. Van Sickle

Chief, Forest Management Bureau

Trust Lands Management Division

Department of Natural Resources and Conservation

ADOPTION OF STATE FOREST LAND MANAGEMENT PLAN (SFLMP) ADMINISTRATIVE RULES

ENVIRONMENTAL ASSESSMENT

March 2003

Proposed Action

The Trust Land Management Division of the Montana Department of Natural Resources and Conservation (DNRC) proposes to adopt forest management rules under the Montana Administrative Procedures Act (MAPA) consistent with the Resource Management Standards (RMS) earlier adopted under the Montana Environmental Policy Act (MEPA) as stated in the State Forest Land Management Plan (SFLMP) Record of Decision (ROD May 30, 1996). The rules are needed to provide field personnel with consistent policy and direction for managing state forested lands. The rules will apply to the forested lands portion of the total 5.2 million acres of school trust lands administered by DNRC.

Alternatives Considered

No Action -- Under the No Action Alternative, forest management rules would not be adopted at this time. Forest management activities would continue under the direction provided by the RMSs contained in the SFLMP ROD.

Action Alternatives -- Under either of the Action Alternatives, forest management rules would be formally adopted under MAPA procedures. Forest management rules would provide the guiding direction for the Forest Management Program. More detailed and consistent direction would be provided to forest managers under this alternative. Implementation of the forest management rules would begin upon adoption and completion of required procedures under MAPA. With the exception of rule differences pertaining to management of old growth forest, the action alternatives are identical.

Action Alternative B consists of a forest management rule set that would retain the wording of Biodiversity RMS 6 (SFLMP, p. ROD-13), which would provide for maintaining or restoring old-growth forest in amounts of at least half the average proportion that would be expected to occur with natural processes on similar sites (rule XVII Biodiversity - Old Growth Management). References contained in RMS 6 and 7 related to the "Biological diversity strategies for forest type groups" report have been removed. The rules serve as the technical procedures guiding the department.

Action Alternative C consists of a forest management rule set that removes the commitment to maintaining or restoring old-growth forest in amounts of at least half the average proportion that would be expected to occur with natural processes on similar sites contained in RMS 6 (SFLMP, p. ROD-13) as a component of rule XVII. Old growth would be managed as outlined in the rules, but no firm numeric commitment to old growth retention would be made. References contained in RMS 6 and 7 related to

"Biological diversity strategies for forest type groups" report have been removed. The rules serve as the technical procedures guiding the department.

Scope and Relationship to the SFLMP

The proposed rule set to be adopted is programmatic and follows the language, philosophy and RMSs contained in the SFLMP ROD (ROD May 30, 1996), with revisions as explained in this document. The Action Alternatives would provide policy and direction for managing forested state trust lands. The rules would not address site-specific issues nor make specific land use allocations. They would provide the legal framework for department project-level decisions. Projections, products or services are expected to remain consistent with predicted environmental effects addressed and evaluated in the SFLMP EIS (May 15, 1996).

In their existing form, the rules are based on a foundation provided by the RMSs contained in the SFLMP ROD (May 30, 1996). Minor wording changes were made in order to fit RMSs into administrative rule format. The order that RMSs are used in the rules varies some from the order presented in the ROD to improve clarity and utility of the rules. SFLMP considerations of consistency and changes made to RMSs are noted in the analysis.

The RMSs stated in the rules are complemented by more detailed policy that is needed to adequately provide field personnel with consistent direction for managing state forested lands. The majority of the additional detailed policy was derived directly from SFLMP Guidance that was adopted by the department to aid implementation of the SFLMP. Some additions and revisions to the original SFLMP Guidance were made to address trust mandate considerations, species status changes, improvements in local knowledge, improvements in clarity for successful implementation, and improve fit with administrative rule format.

If selected, either of the Action Alternatives would provide the guiding framework for proposing and analyzing site-specific projects. The resulting rules would make site-specific decisions more efficient by helping the department remain consistent with its overall management philosophy, and by saving needless repetition of the reasoning behind policy decisions that have already been made. The rules would not substitute for public involvement or proper analysis and documentation in future project-specific decisions.

Project Need

On February 21, 2001, the Montana First Judicial District Court in and for Lewis and Clark County, in Cause No. BDV 2000-369, *Friends of the Wild Swan v. Montana Department of Natural Resources and Conservation*, issued a judicial order ("February 21, 2001 Order") directing DNRC to undergo formal rulemaking under MAPA on the SFLMP Biodiversity Guidance that was implemented by the department in May 1998. Following this order, the department initiated the process of incorporating the SFLMP into rules. The purpose of this EA is to address potential effects of changes associated

with revision of RMSs and guidance, and ensure compliance with MAPA and MEPA procedural requirements.

Environmental Assessment Development

This environmental assessment was developed concurrently with final revision of the draft forest management rules. This EA tiers to, and adopts the original effects assessments contained in the SFLMP EIS (May 15, 1996) and relies on the findings contained in the SFLMP EIS ROD. The EA was prepared through an interdisciplinary approach in compliance with MEPA.

Public Involvement

During the development of the SFLMP, a mailing list was compiled of those interested in participating in the public involvement process. On January 19, 1995, a request form was mailed to over 600 people on the list, asking if the interested party wanted to receive SFLMP EIS documents. The SFLMP DEIS was released to the public to review on June 19, 1995. EIS documents were mailed to all interested parties that requested them. A press release was issued announcing the availability of the document, and a request for comments was made. The comment period for the DEIS lasted 45 days and closed on August 4, 1995. On June 30, 1995, at the request of the Wood Products Association, a letter announcing the availability of the DEIS was sent to each state institution that is a designated beneficiary of forested trust lands.

During this process, 174 comment correspondences were received. Comments came from 98 individuals, 51 organizations, 12 agencies, 8 schools and 3 legislators. Responses to each comment were developed by the department as a part of the SFLMP EIS programmatic planning process. A detailed record of this process and the comments are contained in the SFLMP FEIS Appendix document (pp. RSP-1 to RSP-127).

On September 26, 2002, the department initiated the formal rulemaking process under MAPA to develop forest management rules as a result of the February 21, 2001 court order. A public comment period for the proposed rules was open for 60 days (September 26, 2002 to November 25, 2002). As a part of this process, three public hearings were held across the state: Helena (November 4, 2002), Missoula (November 6, 2002) and Kalispell (November 7, 2002). A total of 17 individuals testified at these three hearings. Testimony was recorded and written comments were accepted. During that time, the department received approximately 236 additional written comments from interested parties. Responses to the comments received were then developed by the department. Under MAPA the responses are a part of the public record and formal rule adoption process. The department must fully consider written and oral submissions respecting the proposed rule. Under either of the action alternatives, rules would be officially adopted with the publication of the Adoption Notice in the Montana Administrative Register (MAR).

As this EA closely follows and adopts the analysis contained in the SFLMP, any resulting effects associated with the proposed actions were, by their nature, generally expected to be minor. As this process was initiated to address the existing issues in the signed

SFLMP, no new issues were to be analyzed, and necessary additional analysis under this proposal is minor. Adjustments to the SFLMP RMSs, such as those addressed in this EA, are consistent with management considerations stated on page ROD-10 of the SFLMP Record of Decision. Under subsection A. Managing the Plan --... "The Forest Management Bureau Chief could change management direction without changing the Plan if the proposed change did not violate the fundamental intent as reflected in the Plan and EIS." None of the proposed revisions are outside the range of effects analyzed in the SFLMP. Due to the size, type, and complexity of this proposal, the department determined that formal project scoping was not necessary.

Legal and Administrative Framework

The legal framework within which the SFLMP is implemented is described in the SFLMP Appendix (pp. LGL-1 to LGL-11). Topics covered in the SFLMP Appendix include general legal framework, planning and environmental assessment, land administration, and resource management. Minor reference updates include the following: 1) rules are found in Title 36 of the ARMs, and 2) rules specific to MEPA are contained in Title 36, Chapter 2, sub-chapter 5 of the ARMs.

Proposed Schedule of Activities

The Chief of the Forest Management Bureau (Trust Lands Management Division) will select an alternative prior to final, formal adoption of rules. Should an Action Alternative be selected and forest management rules be adopted, an adoption notice would be published in the MAR (anticipated March 2003). Rules would be available to all interested parties. The rules would include all of the elements necessary for implementation at the project level. As such, the rules would formally codify the SFLMP. The rules would be approved by the Board of Land Commissioners prior to final adoption.

Other Governmental Agencies with Jurisdiction

The actions and policies of other large forest landowners and of state and federal regulatory agencies and county governments affect the management of DNRC forested lands. A complete discussion that is relevant to this proposal is contained in the SFLMP FEIS (pp. III-6 to III-8).

Affected Environment and Environmental Effects

A complete discussion of the affected environment and environmental effects is contained in the SFLMP FEIS and ROD (May 30, 1996). This EA tiers to the complete evaluations contained in these earlier documents. However, as minor changes were made to the RMSs stated in the ROD, an additional assessment was necessary to ensure that changes were within the range of effects analyzed in the FEIS. This analysis consists of a review of each resource category that could be affected, and disclosure of any expected changes in effects from what was originally stated in the SFLMP FEIS for the proposed alternatives.

GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE

No Action - Under the No Action Alternative, no changes in the existing management direction would occur. No direct, indirect, or cumulative effects would be anticipated.

Action Alternatives – Under both Action Alternatives, detailed forest management rules would be adopted under MAPA that are consistent with the intent and philosophy of the SFLMP ROD. No associated direct, indirect or cumulative effects differing from those disclosed in the SFLMP FEIS would be anticipated.

WATER QUALITY, QUANTITY AND DISTRIBUTION

No Action - Under the No Action Alternative, no changes in the existing management direction would occur. No direct, indirect, or cumulative effects would be anticipated.

Action Alternatives- Under both Action Alternatives, detailed forest management rules would be adopted under MAPA that are consistent with the intent and philosophy of the SFLMP ROD. No associated direct, indirect or cumulative effects differing from those disclosed in the SFLMP FEIS would be anticipated.

Rule XXII Watershed (General)

Watershed RMSs 14, 15, 16 and 17 were dropped from the forest management rule set because they pertain to activities that are administered under separate DNRC programs. The intent of the forest management rules is to address DNRC forest management activities as defined by rule. As such, the rules do not address fire management, fire suppression, fire rehabilitation or rehabilitation of other development activities as described in these RMSs. No measurable effects to water quality or beneficial uses are expected to result from this change.

Rule XXIII Watershed (Cumulative Effects)

The language contained in the forest management rule is different than that contained in Watershed RMS 7. SFLMP Watershed RMS 7 specified that threshold values for cumulative watershed effects would be established for the Stillwater, Coal Creek and Swan River State Forest at a level to ensure protection of beneficial uses with a low degree of risk. The language was changed in the rules to reflect changes that have occurred within Montana Law regarding assessment of impaired bodies of water and development of Total Maximum Load Development (TMDL), since the adoption of the SFLMP. The rules recognize the sensitivity and special management considerations needed statewide for all bodies of water that have been identified on Montana's 303(d) list as impaired and that are subsequently in need of TMDL development. The primary watersheds draining the Stillwater, Coal Creek and Swan River State Forest are included on the 303(d) list, and therefore would still be managed to ensure low levels of risk due to cumulative watershed effects under the proposed rule. The rules provide for the same levels of protection for water quality and beneficial as provided by the SFLMP. No measurable effects to water quality or beneficial uses are expected to result from this change.

Rule XXIV Watershed (Monitoring)

The language contained in the forest management rule is different than that contained in Watershed RMSs 21 and 23. The language in WS RMS 21 was changed to incorporate

only those activities administered under the Forest Management Program. Activities such as mining, cabin sites and recreation were not included in the rules because they pertain to activities that are administered under separate DNRC programs. The intent of the forest management rules is to address DNRC forest management activities as defined by rule. Problems identified during monitoring that are attributable to other administrative programs will still be documented and shared with other DNRC program staff. Cooperative remedies and mitigation efforts will be considered when appropriate. Therefore, no measurable effects to water quality or beneficial uses are expected to result from this change.

The language contained in the Watershed RMS 23 was also changed in the rules. Specific references to the Flathead Basin Forest Practices and Fisheries Program Final Report Recommendations were dropped from rules. This is because the monitoring strategy outlined in this document has been superseded by the development and adoption of a Bull Trout Restoration Plan, and a Conservation Agreement for Westslope Cutthroat Trout by the State of Montana. The forest management rules have integrated the monitoring strategies contained in these more recent cooperative conservation efforts. The monitoring objectives contained in these agreements and documents are consistent with the SFLMP. Therefore, no measurable effects to water quality or beneficial uses are expected to result from this change.

AIR QUALITY

No Action - Under the No Action Alternative, no changes in the existing management direction would occur. No direct, indirect, or cumulative effects would be anticipated.

Action Alternatives - Under either of the Action Alternatives, detailed forest management rules would be adopted under MAPA that are consistent with the intent and philosophy of the SFLMP ROD. No associated direct, indirect or cumulative effects differing from those disclosed in the SFLMP FEIS would be anticipated.

VEGETATION COVER, QUANTITY AND QUALITY

No Action - Under the No Action Alternative, no changes in the existing management direction would occur. No direct, indirect, or cumulative effects would be anticipated.

Action Alternatives B and C - Under the Action Alternatives, detailed forest management rules would be adopted under MAPA that are consistent with the intent, and philosophy of the SFLMP ROD. No associated direct, indirect or cumulative effects differing from those disclosed in the SFLMP FEIS would be anticipated.

Rule IV Biodiversity

The rules drop a portion of Biodiversity RMS 1: "A coarse filter approach "assumes that if landscape patterns and process (similar to those species evolved with) are maintained, then the full complement of species will persist and biodiversity will be maintained" (Jensen and Everett, 1993)." This portion was removed since it provided no direction

being instead a simple statement of management philosophy. However, the concept is captured in the definitions section of the rules.

Rule VI Biodiversity

A portion of RMS 2) is removed from the rules. Deleted: "The coarse filter approach supports diverse wildlife habitat by managing for a variety of forest structures and compositions, instead of focusing on habitat needs for individual, selected species." The portion was deleted because it provides no direction being instead a simple statement of philosophy. However, the concept is captured in the definitions section of the rules.

This clarified the department's fine filter commitment to comport with existing laws and mandates resulting in no change to intent of the SFLMP.

Rule VII

This rule replaced the typical analysis area of a "third order drainage" mentioned in the RMS with the "administrative unit" as the typical analysis area; also added the words "a range of" to RMS 3 as follows: VII (2) Our typical analysis unit would be a third order drainage wherein we would focus on maintaining or restoring "a range of" the forest conditions that would have naturally been present given topographic, edaphic and climatic characteristics of the area. The additional language results in no change in effects from the SFLMP.

In rule VII (3) the department changed the word "structures" to "conditions" as follows: Timber harvests would be designed to promote long-term diversity and an appropriate representation of forest conditions across the landscape. Where our ownership contained forest "structures" (in rule changed to "conditions") made rare on adjacent lands due to others management activities, we would (in rule changed to "may") not necessarily maintain those structures in amounts sufficient to compensate for their loss when assessed over the broader landscape. These two minor wording changes result in no change to the intent of the SFLMP or in the effects anticipated.

Rule VII (3.a) shows minor wording changes by adding the following: However, if state ownership contains rare or unique habitat elements, as previously defined in [NEW RULE III] occurring naturally, the department shall manage so as to retain those elements, to the extent it is consistent with fiduciary duties owed to the beneficiary. The original sentence from RMS 3 follows: However, if our ownership contained rare or unique habitat elements occurring naturally (e.g, bog, patches of a rare plant), we would manage so as to retain those elements. The changes result in no change of intent or effects compared to the SFLMP since they simply clarify the relationship between retention of the landscape elements described and our trust obligations.

RMS 4 (Rule XVI) reflects identical changes as RMS 3 as described in the previous paragraph.

RMS 6 was revised by omitting the following from rule: -- Procedures such as those described in "Biological Diversity Strategies for Forest Type Groups" or other technical

references would be used for designating and managing old-growth blocks and replacement areas. This phrase was deleted because the rules now provide the technical reference to be used by the department. The rules result in implementation of the intent of the SFLMP with no change in effects.

RMS 6 is also expanded on by inclusion of procedures initially described in the department's 1998 Biodiversity Implementation Guidelines. Inclusion in the rules clarifies and implements the intent of the SFLMP and results in no change in effects.

RMS 7 is deleted. The rules now provide necessary program direction in place of the references contained in RMS 7. The implementation of the SFLMP through inclusion of Guidelines as rules results in no change in effects from the SFLMP and clarifies the intent of the SFLMP.

RMS 9 Landscape evaluations would be checked to compare actual effects of management activities and natural processes against desired or predicted effects (added: to the extent practicable) in rule XIX. This minor addition results in no change from the intent of the SFLMP nor in anticipated effects.

RMS 10 Cooperative plans would be evaluated as needed, to monitor how successfully they are being implemented (added: and to determine if continued participation is warranted) in Rule XVII (a). The phrase "in its sole discretion" was also added to Rule XVII. The department considers it appropriate to retain discretion as consistent with department mandates, ownership and other objectives. These additions result in no change from the intent of the SFLMP nor in anticipated effects.

Minor wording changes were made in Silviculture RMSs and these were reviewed. None of the minor wording changes in the Silviculture RMSs result in a change of SFLMP intent or effects.

Action Alternative B – The content of RMS 6 (ROD) ...“DNRC would seek to maintain or restore old-growth forest in the amounts of at least half the average proportion that would be expected to occur with natural processes on similar sites”...would be retained in rule XVII. No change in effects from the SFLMP would be anticipated. No change in effects on forest fragmentation, patch size and patch configuration would be expected under this alternative.

Action Alternative C – The commitment to retain old growth made in RMS 6 (ROD) would be removed from rule XVIII. Old growth would be managed as outlined in the rules, but no firm numeric commitment to old growth retention would be made. The anticipated effects are within the scope of analysis contained in the SFLMP (FEIS: SUM-10; SUM-44; SUM-57; IV-62 to IV-73). No change in effects on forest fragmentation, patch size and patch configuration would be expected under this alternative.

Rule XLVII Categorical Exclusions

An additional categorical exclusion for timber harvest was included in both Action Alternative rule sets. This categorical exclusion would allow timber harvest of up to 100,000 board feet, or salvage harvest of 500,000 board feet. Such harvest or salvage would not be allowed in situations where Extraordinary Circumstances (see Rule XLVII Categorical Exclusions) would be likely to occur, and all projects implemented under this categorical exclusion would be required to conform to these rules.

No Action - Under the No Action Alternative, no changes in the existing management direction would occur. No direct, indirect, or cumulative effects would be anticipated.

Action - Both Action Alternatives -- Past department experience has shown that harvests of these volumes are normally of short duration and limited area. Disturbance to the land and other resources would be minimal. The exclusion would not apply unless it was obvious that the cumulative effects would not be significant when considered together with other harvesting in the area.

Small volume harvests could help maintain a supply of timber for small logging operations and mills, helping to provide jobs and sustain local economies. Small harvests and salvages could also be part of sustained-yield management, whether to optimize total harvest and trust income or as an element of sustained multiple resource management.

Salvaging dead or dying trees would help to control insect and disease, and reduce wildfire danger. Removing dead and dying trees could reduce the number of snags, snag replacements, and large fallen logs that are important habitat features for some wildlife species and components of some ecosystems.

TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS

No Action - Under the No Action Alternative, no changes in the existing management direction would occur. No direct, indirect, or cumulative effects would be anticipated.

Action Alternatives B and C - Under the Action Alternatives, detailed forest management rules pertaining to wildlife would be adopted under MAPA that are consistent with the intent, and philosophy of the SFLMP ROD. No associated direct, indirect or cumulative effects differing from those disclosed in the SFLMP FEIS would be anticipated.

Action Alternative B - The content of RMS 6 (ROD) ...“DNRC would seek to maintain or restore old-growth forest in the amounts of at least half the average proportion that would be expected to occur with natural processes on similar sites”...would be retained in rule XVIII. No change in effects from the SFLMP would be anticipated.

Action Alternative C - The commitment to retain old growth made in RMS 6 (ROD) would be removed from rule XVIII. Old growth would be managed as outlined in the rules, but no firm numeric commitment to old growth retention would be made. The anticipated effects are within the scope of analysis contained in the SFLMP for Forest Vegetation and Wildlife respectively (FEIS: SUM-10, SUM-44, SUM-57, IV-62 to IV-73; SUM-61, SUM-62, IV-116 to IV-167).

Under both Action Alternatives some minor changes to SFLMP RMS language were made in rules pertaining to terrestrial, avian and aquatic life and habitats. The rules are listed below with an explanation of potential for associated effects.

Rule XLII Big Game (general)

Big Game RMS 3 was dropped from the forest management rule set because it pertains to the replacement of outdated November 1989 department policy that has been not been in use for approximately 7 years. Forest management rules would provide needed direction, thus, this RMS is unnecessary. This change is consistent with the original SFLMP RMSs and would result in no measurable effects to wildlife or their habitats. Big Game RMSs 5 and 6 were retained in rule in new and separate locations (rule XIX Biodiversity - Field Reviews and rule XLVIII Management of the State Forest Land Management Plan).

Rule XXVII Fisheries (general)

The language contained in the forest management rule set is different than that contained in Fisheries RMSs 2, 8 and 9. Specific references to the Flathead Basin Forest Practices and Fisheries Program Final Report Recommendation 17 and the Immediate Actions for Bull Trout recommended by Governor's Bull Trout Restoration Team were dropped from rules. This is because the documents referenced in the original RMSs have been superseded by the development and adoption of a Bull Trout Restoration Plan and a Conservation Agreement for Westslope Cutthroat Trout by the State of Montana. The forest management rules have integrated the strategies contained in these more recent cooperative conservation efforts. The objectives contained in these agreements are consistent with the SFLMP and would result in no measurable effects to fisheries or fish habitat.

Fisheries RMS 7 was dropped from the forest management rules because these conservation measures have also been integrated into the State's Bull Trout Restoration Plan, and conservation strategies contained in the Westslope and Yellowstone Cutthroat Trout Conservation Agreements. The objectives contained in these agreements are consistent with the SFLMP and would result in no measure effects to fisheries or fish habitat.

**UNIQUE, ENDANGERED, SENSITIVE, FRAGILE OR LIMITED
ENVIRONMENTAL RESOURCES**

No Action - Under the No Action Alternative, no changes in the existing management direction would occur. No direct, indirect, or cumulative effects would be anticipated.

Action Alternatives B and C - Under the Action Alternatives, detailed forest management rules pertaining to wildlife would be adopted under MAPA that are consistent with the intent, and philosophy of the SFLMP ROD. No associated direct, indirect or cumulative effects differing from those disclosed in the SFLMP FEIS would be anticipated.

Action Alternative B – The content of RMS 6 (ROD) ...“DNRC would seek to maintain or restore old-growth forest in the amounts of at least half the average proportion that would be expected to occur with natural processes on similar sites”...would be retained in rule XVII. No change in effects from the SFLMP would be anticipated.

Action Alternative C – The commitment to retain old growth made in RMS 6 (ROD) would be removed from rule XVIII. Old growth would be managed as outlined in the rules, but no firm numeric commitment to old growth retention would be made. The anticipated effects are within the scope of analysis contained in the SFLMP for Forest Vegetation and Wildlife respectively (FEIS: SUM-10, SUM-44, SUM-57, IV-62 to IV-73; SUM-61, SUM-62, IV-116 to IV-167).

Action Alternatives - Some minor changes to SFLMP RMS language were made in rules pertaining to threatened and endangered species. The rules are listed with an explanation of potential for associated effects below.

Rule XXVIII Threatened and Endangered Species (2), (2)(a) and (2)(b).

The rules will carry the force of law when adopted. Thus, the department considers it appropriate to retain discretion for working group and recovery effort participation, as consistent with department mandates, ownership and other objectives. Consequently, the phrase "in its sole discretion" was added to reflect this need (T&E RMS 2). The department has no intention of reducing participation in working groups applicable to management of habitat on state lands, however, discretionary language was deemed necessary. This change is consistent with the original SFLMP RMSs and would result in no measurable effects to unique, endangered, fragile or limited environmental resources.

T&E RMS 3 was removed from rules for threatened and endangered species, but is contained in rule XLVIII Management of the State Forest Land Management Plan.

T&E RMS 4 was clarified in rule XXVIII Threatened and Endangered Species (3) to acknowledge that other appropriate data repositories for monitoring information may be present other than those specified in the RMS. This change is consistent with the original SFLMP RMSs and would result in no measurable effects to unique, endangered, fragile or limited environmental resources.

Rule XXXVI Sensitive Species (2)(a)

As worded in Sensitive Species RMS 8, the language originally stated that *all* (italics added) observations of sensitive plant or animal species would be reported to the Montana Natural Heritage Program (MNHP). The proposed rule change would state that only *notable* (italics added) observations would be reported to the MNHP or other appropriate data repository. These changes were needed to reduce the volume of low-value observations, and acknowledge that in the future, other data repositories may be more appropriate to receive information. This change is consistent with the original SFLMP RMSs and would result in no measurable effects to unique, endangered, sensitive, fragile or limited environmental resources.

Rule XXXVI Sensitive Species (3)

Pertains to SS RMS 6. The rules will carry the force of law when adopted. Thus, the department considers it appropriate to retain discretion for obtaining and referencing the most appropriate information sources, which can change over time. Thus, the phrase " in its sole discretion" was added to reflect this need. The department intends to continue use of the best information available to address habitat concerns on state lands, however, discretionary language was deemed necessary. This change is consistent with the original SFLMP RMSs and would result in no measurable effects to unique, endangered, sensitive, fragile or limited environmental resources.

Rule XXXVI Sensitive Species (general)

Sensitive Species RMS 5 was dropped from the forest management rule set because it directs the Forest Management Bureau to provide guidance for managing to support populations of sensitive species. Forest management rules would provide this direction, thus, this RMS is unnecessary. This change is consistent with the original SFLMP RMSs and would result in no measurable effects to unique, endangered, sensitive, fragile or limited environmental resources.

HISTORICAL AND ARCHAEOLOGICAL SITES

No Action - Under the No Action Alternative, no changes in the existing management direction would occur. No direct, indirect, or cumulative effects would be anticipated.

Action Alternatives - Under either of the Action Alternatives, detailed forest management rules would be adopted under MAPA that are consistent with the intent and philosophy of the SFLMP ROD. No associated direct, indirect or cumulative effects differing from those disclosed in the SFLMP FEIS would be anticipated.

AESTHETICS

No Action - Under the No Action Alternative, no changes in the existing management direction would occur. No direct, indirect, or cumulative effects would be anticipated.

Action Alternatives - Under either of the Action Alternatives, detailed forest management rules would be adopted under MAPA that are consistent with the intent and philosophy of the SFLMP ROD. No associated direct, indirect or cumulative effects differing from those disclosed in the SFLMP FEIS would be anticipated.

DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AIR OR ENERGY

No Action - Under the No Action Alternative, no changes in the existing management direction would occur. No direct, indirect, or cumulative effects would be anticipated.

Action Alternatives - Under either of the Action Alternatives, detailed forest management rules would be adopted under MAPA that are consistent with the intent and philosophy of

the SFLMP ROD. No associated direct, indirect or cumulative effects differing from those disclosed in the SFLMP FEIS would be anticipated.

OTHER ENVIRONMENTAL DOCUMENTS PERTINENT TO THE AREA

No Action - Numerous other federal and state management plans exist for Montana (such as, federal USFS Forest Plans, federal threatened and endangered species recovery plans, state Management Plans for Wildlife Management Areas, Plum Creek Timber Company Habitat Conservation Plan etc.) and these would apply regardless of DNRC selection of this alternative. Under the No Action Alternative, no changes in the existing management direction would occur and no other federal or state management plans would be affected. No direct, indirect, or cumulative effects would be anticipated.

Action Alternatives - Numerous other federal and state management plans exist for Montana and would apply regardless of DNRC selection of this alternative. Under either of the Action Alternatives, no other federal or state management plans would be affected. Detailed forest management rules would be adopted under MAPA that are consistent with the intent and philosophy of the SFLMP ROD. No associated direct, indirect or cumulative effects differing from those disclosed in the SFLMP FEIS would be anticipated.

HUMAN HEALTH AND SAFETY

No Action - Under the No Action Alternative, no changes in the existing management direction would occur. No direct, indirect, or cumulative effects would be anticipated.

Action Alternatives - Under either of the Action Alternatives, detailed forest management rules would be adopted under MAPA that are consistent with the intent and philosophy of the SFLMP ROD. No associated direct, indirect or cumulative effects differing from those disclosed in the SFLMP FEIS would be anticipated.

INDUSTRIAL, COMMERCIAL AND AGRICULTURAL ACTIVITIES AND PRODUCTION

No Action - Under the No Action Alternative, no changes in the existing management direction would occur. No direct, indirect, or cumulative effects would be anticipated.

Action Alternatives - Under either of the Action Alternatives, detailed forest management rules would be adopted under MAPA that are consistent with the intent and philosophy of the SFLMP ROD. No associated direct, indirect or cumulative effects differing from those disclosed in the SFLMP FEIS would be anticipated.

Weed Management Rule XLV

RMS 1 (pertains to rule XLV (2)) was revised and language was removed that specified compliance with weed management law, inventory of occurrence, development of management plans, and allocation of funding for control projects. These activities would be addressed through ongoing projects and through existing cooperative plans and laws.

The language was not considered necessary in rule. No associated direct, indirect or cumulative effects differing from those disclosed in the SFLMP FEIS would be anticipated.

RMS 5 (pertains to rule XLV (2)(iv)) was revised. Language was removed that specified a specific number of years that continued control efforts would be applied following activities creating soil disturbance. These efforts would continue as needed on ongoing projects and license renewals. The language was not considered necessary in rule. No associated direct, indirect or cumulative effects differing from those disclosed in the SFLMP FEIS would be anticipated.

RMS 6 (pertains to rule XLV (1)(b)) was revised. Language was removed that specified that weed management for large areas may be limited to containment. The language was not considered necessary in rule as it identifies an obvious management strategy where such circumstances exist. No associated direct, indirect or cumulative effects differing from those disclosed in the SFLMP FEIS would be anticipated.

RMS 7 (pertains to rule XLV) this RMS was removed. It is an obligation that is understood by the department. The language was not considered necessary in rule. No associated direct, indirect or cumulative effects differing from those disclosed in the SFLMP FEIS would be anticipated.

RMS 8 (pertains to rule XLV (3)(b)) this RMS was revised. The unnecessary reference to the Montana County Weed Management Act was removed. The language was not considered necessary in rule. No associated direct, indirect or cumulative effects differing from those disclosed in the SFLMP FEIS would be anticipated.

RMS 9 (pertains to rule XLV (5)) this RMS was revised. The reference to special uses was removed as the rules apply to forest management activities. The language was not considered necessary in rule. No associated direct, indirect or cumulative effects differing from those disclosed in the SFLMP FEIS would be anticipated.

RMSs 11, 12, and 13 (pertains to rule XLV) were omitted from rule as these requirements would be met as a part of ongoing project activities, licensing renewals and cooperative agreements with other entities and counties. The language was not considered necessary in rule. No associated direct, indirect or cumulative effects differing from those disclosed in the SFLMP FEIS would be anticipated.

Grazing on Classified Forest Lands Rule XLIV

RMS 1 (pertains to rule XLIV (3)) was revised to acknowledge that changes to grazing stipulations could occur on licenses at any time during the term of the license. No associated direct, indirect or cumulative effects differing from those disclosed in the SFLMP FEIS would be anticipated.

RMS 3 (pertains to rule XLIV (5)) was revised and references and range site determination criteria were removed. Accepted methods are currently in place, which may change over time with improved information and methodologies. As such, these were not considered necessary to include in formal rule. No associated direct, indirect or cumulative effects differing from those disclosed in the SFLMP FEIS would be anticipated.

RMS 6 (pertains to rule XLIV (8)) reference to numerical requirement was removed for determination of healthy riparian function. This requirement was considered to be an unrealistic criterion that is difficult to quantify and define. No associated direct, indirect or cumulative effects differing from those disclosed in the SFLMP FEIS would be anticipated.

RMS 7 a. and b. (pertains to rule XLIV (11)) were combined in rule. No associated direct, indirect or cumulative effects differing from those disclosed in the SFLMP FEIS would be anticipated.

RMS c. (pertains to rule XLIV (11)) was removed, which included unnecessary references and unrealistic browse utilization criteria. No associated direct, indirect or cumulative effects differing from those disclosed in the SFLMP FEIS would be anticipated.

RMS d. (pertains to rule XLIV (12)) this RMS was revised to clarify applicability and roles of licensee and the department. No associated direct, indirect or cumulative effects differing from those disclosed in the SFLMP FEIS would be anticipated.

QUANTITY AND DISTRIBUTION OF EMPLOYMENT

No Action - Under the No Action Alternative, no changes in the existing management direction would occur. No direct, indirect, or cumulative effects would be anticipated.

Action Alternatives - Under either of the Action Alternatives, detailed forest management rules would be adopted under MAPA that are consistent with the intent and philosophy of the SFLMP ROD. No associated direct, indirect or cumulative effects differing from those disclosed in the SFLMP FEIS would be anticipated.

LOCAL AND STATE TAX BASE AND TAX REVENUES

No Action - Under the No Action Alternative, no changes in the existing management direction would occur. No direct, indirect, or cumulative effects would be anticipated.

Action Alternatives - Under either of the Action Alternatives, detailed forest management rules would be adopted under MAPA that are consistent with the intent and philosophy of the SFLMP ROD. No associated direct, indirect or cumulative effects differing from those disclosed in the SFLMP FEIS would be anticipated.

DEMAND FOR GOVERNMENT SERVICES

No Action - Under the No Action Alternative, no changes in the existing management direction would occur. No direct, indirect, or cumulative effects would be anticipated.

Action Alternatives - Under either of the Action Alternatives, detailed forest management rules would be adopted under MAPA that are consistent with the intent and philosophy of the SFLMP ROD. No associated direct, indirect or cumulative effects differing from those disclosed in the SFLMP FEIS would be anticipated.

LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS

No Action - Under the No Action Alternative, no changes in the existing management direction would occur. No direct, indirect, or cumulative effects would be anticipated.

Action Alternatives - Under either of the Action Alternatives, detailed forest management rules would be adopted under MAPA that are consistent with the intent and philosophy of the SFLMP ROD. No associated direct, indirect or cumulative effects differing from those disclosed in the SFLMP FEIS would be anticipated.

ACCESS TO, AND QUALITY OF, RECREATIONAL AND WILDERNESS ACTIVITIES

No Action - Under the No Action Alternative, no changes in the existing management direction would occur. No direct, indirect, or cumulative effects would be anticipated.

Action Alternatives - Under either of the Action Alternatives, detailed forest management rules would be adopted under MAPA that are consistent with the intent and philosophy of the SFLMP ROD. No associated direct, indirect or cumulative effects differing from those disclosed in the SFLMP FEIS would be anticipated.

DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING

No Action - Under the No Action Alternative, no changes in the existing management direction would occur. No direct, indirect, or cumulative effects would be anticipated.

Action Alternatives - Under either of the Action Alternatives, detailed forest management rules would be adopted under MAPA that are consistent with the intent and philosophy of the SFLMP ROD. No associated direct, indirect or cumulative effects differing from those disclosed in the SFLMP FEIS would be anticipated.

SOCIAL STRUCTURES AND MORES

No Action - Under the No Action Alternative, no changes in the existing management direction would occur. No direct, indirect, or cumulative effects would be anticipated.

Action Alternatives - Under either of the Action Alternatives, detailed forest management rules would be adopted under MAPA that are consistent with the intent and philosophy of the SFLMP ROD. No associated direct, indirect or cumulative effects differing from those disclosed in the SFLMP FEIS would be anticipated.

CULTURAL UNIQUENESS AND DIVERSITY

No Action - Under the No Action Alternative, no changes in the existing management direction would occur. No direct, indirect, or cumulative effects would be anticipated.

Action Alternatives - Under either of the Action Alternatives, detailed forest management rules would be adopted under MAPA that are consistent with the intent and philosophy of the SFLMP ROD. No associated direct, indirect or cumulative effects differing from those disclosed in the SFLMP FEIS would be anticipated.

OTHER APPROPRIATE SOCIAL AND ECONOMIC CIRCUMSTANCES (i.e., alteration of future land uses)

No Action - Under the No Action Alternative, no changes in the existing management direction would occur. No direct, indirect, or cumulative effects would be anticipated.

Action Alternatives - Under either of the Action Alternatives, detailed forest management rules would be adopted under MAPA that are consistent with the intent and philosophy of the SFLMP ROD. No associated direct, indirect or cumulative effects differing from those disclosed in the SFLMP FEIS would be anticipated. No change in annual harvest level would be anticipated.

Cumulative Effects

No Action - Under the No Action Alternative, no changes in the existing management direction would occur. No cumulative effects would be anticipated.

Action Alternatives - Under either of the Action Alternatives, detailed forest management rules would be adopted under MAPA that are consistent with the analysis contained in the SFLMP FEIS. Some minor deviations in wording of original SFLMP RMSs would be present in adopted forest management rules, however, no associated cumulative effects differing from those disclosed in the SFLMP FEIS analysis would be anticipated. Overall, adoption of the forest management rules could improve the efficiency and consistency of project-level decision making at the statewide level, which would be beneficial to trust beneficiaries.

Action Alternative B - The content of RMS 6 (ROD) would be retained in rule XVII. No change in cumulative effects from the SFLMP would be anticipated.

Action Alternative C - The commitment to retain old growth made in RMS 6 (ROD) would be removed from rule XVII. Old growth would be managed as outlined in the rules, but no firm numeric commitment to old growth retention would be made.

Anticipated cumulative effects would be within the scope of analysis contained in the SFLMP for Forest Vegetation and Wildlife respectively (FEIS: SUM-10, SUM-44, SUM-57, IV-62 to IV-73; SUM-61, SUM-62, IV-116 to IV-167).

List of Preparers

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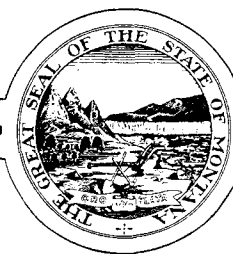
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SFLMP 1996. State Forest Land Management Plan Final EIS. Montana Dept. Nat. Res. and Conserv. May 16, 1996.

SFLMP 1996a. State Forest Land Management Plan Final EIS Appendixes. Montana Dept. Nat. Res. and Conserv. May 16, 1996.

ROD 1996. State Forest Land Management Plan Final EIS Record of Decision. Montana Dept. Nat. Res. and Conserv. May 30, 1996. 46 pp.

DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION



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Cover Letter

September 26, 2003

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Ladies and Gentlemen:

The enclosed Environmental Assessment (EA) has been prepared for the North Fork of the Smith River Dam Rehabilitation Project and is submitted for your consideration. Please contact me at (406) 444-6622 (e-mail jdomino@state.mt.us) should you have any questions or comments. Comments will be accepted until 5:00 p.m., October 27, 2003. Comments can also be mailed to: MT Dept. of Natural Resources and Conservation, State Water Projects Bureau, 1424 9th Ave., P.O. Box 201601, Helena, MT 59620-1601, attn. James P. Domino. Copies of the EA are available upon request. The EA can also be viewed on the DNRC website at www.dnrc.state.mt.us. Thank you.

Sincerely,

Handwritten signature of James P. Domino in cursive.

James P. Domino
Environmental Specialist
State Water Projects Bureau

NORTH FORK OF THE SMITH RIVER DAM REHABILITATION DRAFT ENVIRONMENTAL ASSESSMENT

Prepared By the State Water Projects Bureau, MT DNRC



September, 2003

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LIST OF APPENDICIES

- Appendix A Project Location/Construction Diagrams/Cultural Resources Map
- Appendix B Estimated Project Cost
- Appendix C Proposed Project Schedule
- Appendix D Photographs / Fact Sheet
- Appendix E HKM Feasibility Study (not attached)**

**Appendix E, the HKM Feasibility Study Report is available for review at the State Water Projects Bureau Helena Office, (406) 444-6646

List of Acronyms and Abbreviations

COE	U.S. Army Corps of Engineers
DEQ	Montana Department of Environmental Quality
DFWP	Montana Department of Fish, Wildlife, and Parks
DNRC.....	Montana Department of Natural Resources and Conservation
EA	Environmental Assessment
EIS	Environmental Impact Statement
MEPA.....	Montana Environmental Policy Act
NHP	Montana Natural Heritage Program
USFWS.....	U.S. Fish and Wildlife Service
USGS.....	U.S. Geological Survey
SHPO.....	Montana State Historic Preservation Officer
SWCB.....	State Water Conservation Board
SWPB	State Water Projects Bureau
NFSWUA	North Fork of Smith River Water Users Association
MBMG.....	Montana Bureau of Mines and Geology

1.0 - PURPOSE AND NEED FOR ACTION

The North Fork Smith River Dam and Reservoir (Lake Sutherland) are located in Meagher County, Montana, in Township 10N, Range 9E, sections 17 and 20. The dam is owned by the Montana Department of Natural Resources and Conservation (DNRC) and is managed by the State Water Projects Bureau (SWPB). The North Fork of Smith River Water Users Association (NFSWUA) operates the dam. The reservoir's principal use is for agricultural irrigation. Recreational use also occurs, with fishing the primary activity. The dam is a zoned earthfill structure. Associated structures include an 80-foot wide (tapering to 40-foot wide) by 135-foot long, uncontrolled reinforced concrete chute spillway, located on the right abutment, and a modified horseshoe reinforced concrete outlet tunnel, 5-feet wide by 5-feet high at the centerline. A 54-inch butterfly valve controls the flow in the tunnel, with a 54-inch slide gate valve serving as an auxiliary. The gates are operated from a small metal gatehouse located midpoint on the dam crest. The reservoir storage capacity at maximum pool is 11,500-acre feet. The reservoir has a natural drainage area of 71 square miles and a surface area of about 335 acres at normal pool. The dam is easily seen from U.S Highway 12.

The North Fork of the Smith River Dam was designed and constructed by the Montana State Water Conservation Board (SWCB). The project operator, the NFSWUA, was incorporated in November 1935. The storage project was financed with a loan and grant from the Public Works Administration and with SWCB funds. The construction contract was awarded to J.L. McLaughlin of Great Falls, MT in the spring of 1936. Construction work commenced on May 4, 1936 and the final inspection was held on November 6, 1936. The work was accepted as complete on November 19, 1936 subject to the contractor furnishing the SWCB with a guarantee as to satisfactory operation of the control gates. Over the years, occasional repairs have been made to the dam and associated structures. None of the repairs or improvements has substantially altered the original design.

The spillway condition has been deteriorating for many years. An inspection conducted by the Army Corps of Engineers (COE) in 1981 found that the dam has inadequate spillway capacity, with the spillway showing serious deterioration. For this reason, the Corps classified the dam as unsafe according to the standards set forth under the National Dam Inspection Act, Public Law 92-367. The spillway has since deteriorated to the point that replacement of the entire structure is needed.

The proposed action calls for the construction of a new spillway with dimensions similar to the existing structure. The new spillway will be designed to meet or exceed all current safety standards. The existing spillway structure would be removed and replaced with a new structure of similar design. All replacement concrete will meet current standards to improve the durability over the original construction. Additional seepage drains would also be installed around the outlet structure. Approximately 30,000 cubic yards of material will be utilized in the cut and fill operation, with a total of approximately 20 disturbed acres.

The overriding goal of this project is to improve the efficiency, safety and functionality of the Dam for its continued use for agricultural irrigation and recreation. Public benefits from this project include the continued use of reservoir water for agricultural irrigation and water-based recreation. Greatly enhanced public safety is an additional and very significant benefit.

1.1 Project Goals and Objectives

Goals of the dam rehabilitation project include the following:

- A. Reduce the likelihood of dam failure and the resulting potential loss of life.
- B. Meet Montana Dam Safety's new spillway standards.
- C. Control seepage to avoid potential stability problems.

- D. Avoid spillway failure in the event of the design flood.
- E. Conserve water resources for the benefit of water users and recreationists.
- F. Extend the dam's useful life and its advantages another 50 to 75 years with minimal negative environmental or socio-economic impacts.

Project Objectives include:

1. Optimize design work for most cost effective rehabilitation option without compromising safety or causing significant environmental damage.
2. Replacement of the deteriorated spillway with a new spillway designed to meet spillway standards and preserve dam integrity.
3. Replacement of the outlet structure and installation of a seepage collection system to control seepage.

1.2 Project Location

The North Fork of the Smith River Dam and Reservoir are located in Meagher County, Montana, in Township 10N, Range 8E, in sections 17 and 20.

1.3 Scope of Environmental Analysis

Public and Agency Involvement

Other state and federal agencies have been contacted by the DNRC to discuss the project and to identify potential environmental issues. Representatives from the COE, DFWP, DEQ, MNP, and the SHPO were contacted. Representative from the NFSWUA were also involved in the planning process.

Issues Studied in Detail

The issues examined in detail in this draft EA were identified by the DNRC, communications with the NFSWUA, other agencies, and through comments received during the development of the feasibility study and the DNRC grant proposal process. Issues identified through the public comment period will be included and addressed in the final EA. Listed below are potential project-related impacts examined in this document.

- Effects on downstream water quality and quantity.
- Effects on Plant and Animal Threatened and Endangered Species, and Species of Special Concern, and effects to other wildlife and fisheries resources.
- Effects to agricultural water uses, land use and ownership.
- Effects to public safety, including traffic, noise, air quality, etc.
- Effects on stream bank and soil erosion due to project construction.
- Effects on recreation and esthetics.

- Effects on the local economy and government services.
- Effects on historic and cultural resources.
- Effects on vegetation, including weed proliferation.
- Cumulative and secondary effects due to project construction.

Issues Eliminated from Further Study

The issues beyond the scope of this EA and eliminated from further study are as follows:

- Breaching the dam

This issue was eliminated from further study due to the significant role the reservoir serves in providing water for agricultural use throughout the basin. With the removal of the dam, the area's agricultural-based economy would be severely impacted due to the unavailability of irrigation and stock water. Many of the area's farms and ranches would most likely experience severe economic hardship. The recreational opportunities associated with the reservoir would be lost. There could also be potentially serious short-term and long-term environmental consequences associated with the dam's removal, including increased sedimentation, stream bank erosion, and an increased likelihood of downstream flooding. The potential severity of the environmental consequences associated with breaching the dam would require a detailed Environmental Impact Statement (EIS) before such a project could proceed. The timeframe for the completion of an EIS is normally long and the condition of the dam would continue to deteriorate during that time, with an increasing risk to people and property downstream.

DNRC Decision Criteria

In addition to the requirements under the MEPA, when deciding on actions and management initiatives to address water storage project issues, the DNRC, by statute, must consider the following, as stated in Section 85-1-701(2) through (3):

- (2) *In setting priorities among new water storage projects, the governor shall consider whether a project:*
 - (a) *solves a severe water problem*
 - (b) *provides multiple uses and benefits*
 - (c) *provides for public uses*
 - (d) *shows strong evidence of broad citizen support*
 - (e) *is able to obtain non-state sources of funding*
 - (f) *protects and seek to enhance social, ecological, cultural and aesthetic values*
 - (g) *improves local and state economic development*
 - (h) *could resolve Indian and federal reserved water rights issues*
 - (i) *supports water conservation activities; and*
 - (j) *promotes the use of water reserved under Montana law.*
- (3) *In setting priorities among water storage rehabilitation projects, the governor shall consider whether the project:*
 - (a) *is needed to protect public safety*
 - (b) *has impacts if not repaired or rehabilitated; and*
 - (c) *accomplished the goals listed in (2)(a) through (2)(j).*

1.4 Applicable Regulatory Requirements

Montana Department of Natural Resources and Conservation (DNRC)

- Montana Dam Safety Act: 85-15-105 MCA – This act applies to the construction, repair, or removal of any dam that impounds 50 acre-feet or more at normal pool elevation. A Dam Safety Permit from the Dam Safety Section of the DNRC would be required.

Montana Department of Fish, Wildlife and Parks (DFWP)

- Non-game and Endangered Species Conservation Act: 87-5-101 MCA - "Species or subspecies of wildlife indigenous to this state which may be found to be endangered within the state should be protected in order to maintain and to the extent possible enhance their numbers."
- Montana Stream Protection Act: 87-5-501 MCA (SPA 124-Permit) – Applies to any project including the construction of new facilities or modification, operation, and maintenance of an existing facility that may affect the natural existing shape and form of any stream, its banks or tributaries.

Montana Department of Environmental Quality (DEQ)

- 318 Authorization: 75-5-308 MCA - The proposed construction would likely increase suspended sediment and turbidity to levels above established standards under all of the action alternatives. Therefore, a short-term exemption from surface water quality standards (318 authorization) from the Montana DEQ would be needed before project construction could commence.
- MPDES Permit: 75-5-401 MCA - If construction would require dewatering pumping, a Montana Pollutant Discharge Elimination System Permit (MPDES) would be required from DEQ.
- Storm Water Discharge: 75-5-401 MCA - A Storm Water Discharge Permit, issued by DEQ, may be required during construction under all of the action alternatives.

Montana State Historic Preservation Office (SHPO)

- Montana Antiquities Act: 22-3-421 through 442 MCA - Clearance from the SHPO indicating no adverse effects to cultural or historic resources as a result of the construction would have to be secured.

U.S. Army Corps of Engineers (COE)

- Federal Clean Water Act: 33 C.F.R. 209 and 40 (404-Permit) – This permit is required when a project will result in the discharge or placement of dredged or fill material in waters of the United States. "Waters of the United States" includes lakes, rivers, streams, wetlands and other aquatic sites. It is anticipated that some dredged or fill material may be placed below the high water level of the reservoir during the proposed construction.

U.S. Fish and Wildlife Service (USFWS)

- Endangered Species Act: 16 U.S.C 1531-1544 - Compliance and Consultation

2.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION

This chapter describes the alternatives that were analyzed in this EA.

2.1 Development of Alternatives

There are many possible variations or alternatives to any proposed action. However, the purpose of developing project alternatives is to address issues or potential problems raised by the proposed project. In addition to the No Action and the Proposed Action, other alternatives have been developed and are described in section 2.2. In 1989 the DNRC contracted with HKM Associates to conduct a Rehabilitation Feasibility Study of the dam for upgrading the dam to then current dam safety standards. The draft study was summarized in a 1995 report to DNRC (Appendix E). The study included the following elements:

- Land Resource and Ownership
- Flood Hydrology and Water Availability
- Geotechnical Investigation and Analysis
- Rehabilitation Plan with Alternatives and Cost Estimates
- Project Evaluation with Farm Budget Analysis and Economic Analysis

In early 2002 DNRC applied the newly adopted Montana Dam Safety spillway standards to the North Fork of the Smith Dam. The required spillway capacity was then determined by calculating the estimated loss of life in the inundation area below the dam, then computing the design floods. The dam was found to be unable to route the required design storm under the new rules. Consequently, the original Feasibility Study has been reviewed and modified to advance a preliminary design which would meet the new spillway standards. These alternatives were developed primarily through the feasibility study conducted by HKM.

Primary Issues

The primary issue that has emerged through the feasibility study and agency contacts is how the proposed project will alleviate public health and safety concerns related to the dam's unsafe condition, while continuing to provide economic benefits with the least amount of negative environmental impact. Primary to this issue is how the project may affect water quality, water flows, fisheries and stream bank erosion downstream from the dam. Some downstream irrigators are concerned that addressing water quality concerns will in some way effect their ability to divert and utilize the water they require for irrigation and stock watering. The DFWP is concerned about flows for reservoir and downstream fisheries resources. The DEQ expressed concerns on water quality and identified the need to continue collecting additional water quality data so baseline information can be established and the development of a Total Maximum Daily Load (TMDL) plan can proceed.

It is these concerns that have resulted in the inclusion of the proposed water quality protection recommendations as part of the action alternatives presented in Section 6.0.

Other Relevant Issues

As identified in Chapter 1.0, other relevant issues are raised by the proposed project. These include, among others, potential effects to land use, wetlands, soils, wildlife, cultural resources, recreational resources, and social and economic considerations. The effect of each alternative on these individual resource areas is examined and compared in the succeeding chapters.

2.2 Description of Alternatives

Various alternative spillway configurations were presented in HKM's 1995 Feasibility Report. The original alternatives were designed to meet the "probable maximum flood" (PMF) criteria for dam safety standards in effect at that time (0.75 of PMF of 40,000 cfs). The spillway configuration alternatives had to pass 30,000 cfs to meet these standards. Consequently, these alternatives represent configurations that are larger than now necessary to pass the design flood. Due to recent changes in criteria for setting Montana Dam Safety spillway standards, an additional alternative was developed by State Water Projects engineers in early 2002 to meet the new Montana spillway standards which are based upon loss of life factors. A summary of the alternative spillway and embankment configurations is provided in Table 1.

NORTH FORK OF THE SMITH DAM REHABILITATION ALTERNATIVE SPILLWAY AND EMBANKMENT CONFIGURATIONS

(HKM 1995 Feasibility Study Alternatives for 0.75 PMF X 40,000cfs)

Auxiliary Spillways								
Alternative	Principal Spillway		Right Abutment		Left Abutment		Max. W.S. Elev for 30,000 cfs	Top of Dam Elevation
	Crest Elev.	Crest Length	Crest Elev.	Crest Length	Crest Elev.	Crest Length		
1	5488.30	120	5490.3	278	NA	NA	5498.20	5500.5
1A	5488.30	120	5490.3	210	NA	NA	5499.20	5501.5
2	5490.00	130	5492.0	350	NA	NA	5499.20	5501.5
2A	5490.00	130	5492.0	240	NA	NA	5500.20	5502.5
3	5490.00	130	5492.0	249	5495.00	300	5498.70	5501.0
3A	5490.00	130	5492.0	175	5495.00	210	5499.70	5502.0
4	5488.30	120/70*	5493.9*	120	NA	NA	5497.80	5498.0

* Effective labyrinth crest length/channel width, with top of fuse plug elevation

(SWPB alternative preliminary design - 50 loss of life design flood at 18,100 cfs, modified from HKM alternative 4):

5	5488.30	120/70**	5492.0**	100	NA	NA	5497.87***	5498.0
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**Effective labyrinth crest length/70-ft actual side-to-side width, crest elevation without fuse plug

***Maximum water storage elevation for 18,500 cfs

Table 1

The new alternative 5 spillway configuration is designed to pass an 18,000 cfs design storm (to account for future growth). This is twice the minimum occurrence interval. Alternative 5 is a modified version of HKM's alternative #4.

Alternatives 1, 1A, 4 and 5 maintain the principal spillway crest at the present top of flashboards elevation (5,488.3' feet). Storage capacity and reservoir operations will not be changed under these alternatives.

The remaining alternatives (2, 2A, 3, 3A) include raising the principal spillway crest 1.7 feet above the existing top of flashboards to elevation 5,490.0.

The alternatives are organized into five alternative spillway configurations (1 – 5) with alternatives 1 – 3 having two alternative embankment configurations. Alternatives 1 – 3 utilize rock fill over the downstream face at a slope of 1.85H:1.0V to raise the embankment. Two feet of rock riprap is added to the upstream face to improve the rapid drawdown stability. The second embankment configuration (alternatives 1A – 3A) utilizes 1.5H:1V slopes on the upstream and downstream faces for the raised area. The upstream face would also be covered with two feet of riprap.

Implementation of the alternatives (other than the No Action alternative) would follow the same procedures and schedules, as detailed in Appendix C. The action alternatives would have similar environmental impacts, since the proposed construction activities and schedules are essentially the same for each of the three action alternatives. Any variance of potential impacts with the action alternatives will be identified for each issue studied in detail as presented in section 4.

No Action

The *No Action Alternative* serves as a baseline description for current conditions at the project site. The current conditions at the project site would continue.

The no action alternative would result in continued degradation of the dam and associated structures, possibly resulting in partial or total failure of the dam in the event of a flood episode, thereby increasing the threat to property and people living downstream. Downstream water quality could be negatively impacted due to the erosion and turbidity that would result from partial or total failure of the dam, with possible negative impacts to reservoir and downstream aquatic habitats. Water available for agricultural and recreational use could also be negatively impacted if no action is taken.

Spillway Alternatives

Alternative 1

Alternative 1 utilizes a rock auxiliary spillway channel adjacent to the principal spillway on the right abutment with the principal spillway crest equal to the present top of flashboards.

Alternative 2

Alternative 2 also utilizes a rock auxiliary spillway adjacent to the principal spillway on the right abutment, but with the principal spillway crest 1.7 feet above the present top of flashboards.

Alternative 3

Alternative 3 utilizes two auxiliary spillway channels – one adjacent to the principal spillway on the right abutment and one on the left abutment. The principal spillway crest is 1.7 feet above the present top of flashboards.

Alternative 4

This alternative was designed for minimal raise of the embankment. The design utilizes a labyrinth crest principal spillway with an adjacent rock channel auxiliary spillway. The labyrinth crest elevation would be equal to the present top of flashboards. The rock channel would include a fuse plug dike designed to wash out at extreme flood events. The fuse plug, under the new spillway standards provides an auxiliary spillway with a larger capacity than needed to pass the design flood.

Alternative 5

The alternative 5 utilizes the labyrinth crest principal spillway with an adjacent rock channel auxiliary spillway as in HKM's alternative 4. However, the fuse plug dike is not used in the auxiliary rock channel because spillway design flood standards are achieved without the additional excavation and installation costs. The labyrinth crest elevation would be equal to the present top of the flashboards. The spillway would be designed for a flow capacity of 18,500 cfs (50 loss of life factor) with the reservoir water surface at the present top of dam. No tower modifications are required for this alternative.

3.0 - AFFECTED ENVIRONMENT

To evaluate potential impacts resulting from the proposed project and the other alternatives described in Chapter 2.0, it is necessary to understand the current environmental condition of the project area.

3.1 Geology

The dam and reservoir site lies in a narrow depression between the Castle Mountains on the south and the Little Belt Mountains on the north, through which the North Fork of the Smith River Flows. The rocks range in age from Belt (Pre-Cambrian) to late Tertiary. The entire reservoir, except a narrow strip above the dam, is in basalt. Geologic units that outcrop within the area include Tertiary sediments and recent alluvium.

3.2 Topography

The area consists of basin and range topography, completed by thrust faulting, with gentle to steeply sloping terrain. Landforms in the area are dominated by benchlands, rolling hills and buttes, with moderate to steep grades, bisected by entrenched stream courses and drainages. Elevations range from 5,400 to 6,300 feet.

3.3 Water Resources

Groundwater: Inventories conducted by the Montana Bureau of Mines and Geology (MBMG) indicates that groundwater exists in sufficient quantities within the Tertiary sediments common in the area for most stock and domestic needs. Shallow ground water in alluvium generally occurs under unconfined conditions. Flow rates as measured at several wells in the project area range from 9 to 79 gallons per minute, with ground water depths ranging from 1 to 89 feet. Ground water quality varies greatly within the area, with the median dissolved-solids concentrations ranging from .005 to 119 milligrams per liter. The pH of ground water in the area ranged from 6.8 to 8.5.

Surface Water: The main surface waters include the North Fork of the Smith River Reservoir (Lake Sutherland) and the North Fork of the Smith River. The water in the North Fork of the Smith River is generally classified as fair to good quality. Surface water quality and quantity are highly variable, depending on the existing climatological and hydrological conditions. The amount of total dissolved solids (TDS) in water is an indication of the salinity. TDS concentrations are considered moderate in the North Fork of the Smith River. Dissolved oxygen is needed to sustain aquatic life, with concentrations of over 7 mg/l generally considered best for cold-water fisheries. Nitrogen and phosphorous are essential for aquatic plant growth, however, high concentrations can cause excessive algal growth, which depletes dissolved oxygen. Nitrogen concentrations of less than 5mg/l are desirable, while phosphorous concentrations of less than 0.1 mg/l are desirable. Water quality data for the North Fork of the Smith River is summarized in Table 2. The main surface water quality problems are caused by non-point type sources, which include agricultural runoff, irrigation returns and similar sources. Problems identified include high sediment loads, nutrient enrichment, and algal growth. The North Fork of the Smith River is listed by the DFWP as a chronically dewatered stream due to the significant flow variations experienced through the year.

Table 2**Water Quality Data for the North Fork of the Smith River**

Total Dissolved Solids (mg/l)		Dissolved Oxygen		Nitrate	Phosphorous
Middle	Range	Middle	Range	Range	Range
268	181-366	9.2	6.6-13.6	<0.05-.21	<0.05-0.23

Source – unpublished USGS water quality data, 1982-1996

mg/l=milligrams per liter

Wetlands: Seeps immediately downstream from the dam have formed a small wetland (less than ½ acre). No other known wetlands exist within the project area.

Water Rights and Reservations: The North Fork Smith River Water Users Association currently has 11,000 acre-feet of water under contract, divided among 29 water users (i.e. farms and ranches). Approximately 100 people are served directly by the Project, while an estimated 1,300 are indirectly served (e.g. non-agricultural uses such as fishing). During the 1980s the MT Department of Fish, Wildlife and Parks (DFWP) applied for several flow reservations within the Smith River Basin. The purpose of the DFWP reservations was to set aside a minimum river flow to protect fisheries habitat. These reservations have no force and effect as provided in the Board of Natural Resources and Conservation Final Order concerning water reservations in the Upper Missouri River Basin because of the current basin closure. The DFWP reservations serve only as an indication of flows needed for fisheries habitat.

3.4 Soils

Soils are generally undifferentiated alluvium, shallow and well drained, with the major soil order of the area being the Mollisols-Entisols, comprised of alluvium and shale parent material. The most common soil types include loams and clay loams in shale, sandy clay and clayey sediments, with soil depths ranging from 20 to 40 inches. The soil-mapping units within the proposed disturbed area have not been specified as land of "statewide importance."

3.5 Vegetation

The plant communities present in the project area include pasture grassland, irrigated cropland, and floodplain vegetation, including sage, willow, cottonwood, water birch, dogwood, alder, rose, snowberry and buffalo berry. The shoreline of the reservoir and adjacent land supports good native grass, especially to the north.

Species of Special Concern: No rare, threatened or endangered plant species, species of special concern, or communities are known to exist in the project area.

Weeds: Spotted knapweed is broadly distributed around the shore of the reservoir, with the highest densities along the west shore. Canada thistle, musk thistle, houndstongue, and common mullein occur in varying densities around the entire shore. The south shore, which is where the majority of recreational use occurs, is the most significant problem area for weed infestations.

3.6 Wildlife

Wildlife commonly found in the vicinity of the project area include moose, elk, mule deer, white-tailed deer, pronghorn, beaver, muskrat, mink, Colombian ground squirrel, mountain lion, black bear, coyote, fox, raccoon, badger, sage grouse, sharp-tailed grouse, ruffed grouse, ring-necked pheasant, Canada geese, great blue heron, sand hill crane and a variety of duck and song bird species. Raptors that have been sighted in the area include bald eagles, golden eagles, great horned owls, turkey vultures, osprey and red-tailed hawks. Osprey, golden and bald eagles and great-horned owls are not year-round residents of the area.

Species of Special Concern: No threatened, endangered or species of special concern have been observed within the project area.

3.7 Fisheries

Fisheries resources found in the North Fork of the Smith River Reservoir include rainbow and brook trout, longnose sucker, white sucker, mountain whitefish, and burbot. An active stocking program for the Reservoir is in place, with approximately 12,000 rainbow trout stocked every two years under the direction of the DFWP. Fisheries resources found in the North Fork of the Smith River include brown, brook and rainbow trout, longnose sucker, mottled sculpin, mountain whitefish and white sucker. The North Fork of the Smith River is listed by the DFWP as a chronically dewatered stream due to the significant flow variations experienced through the year. The DFWP filed for an instream flow reservation of 9 CFS along the entire length of the river. The reservation has no force and effect as provided in the Board of Natural Resources and Conservation Final Order concerning water reservations in the Upper Missouri River Basin because of the current basin closure. The DFWP reservation serves only as an indication of flows needed for fisheries habitat.

Species of Special Concern: No threatened, endangered or species of special concern have been observed within the project area.

3.8 Ownership and Land Use

Land Ownership: Land ownership within the project area and immediate vicinity of the reservoir includes federal, state and private lands.

Land Use: Primary uses of the land in the vicinity of the project area include livestock grazing, farming (primarily hay and alfalfa), and recreational use associated with the North Fork of the Smith River Reservoir and surrounding lands. Lewis and Clark National Forest lands exist approximately 3 miles north and 5 miles south of the reservoir. Logging, mining and cattle grazing occur on national forest lands in the area. Cattle grazing also occurs within the project location. The land surrounding the state-owned reservoir is privately owned. U.S Highway 12 runs along the south side of the reservoir for approximately 2 miles.

Regulatory Restrictions on Private Property Rights: The North Fork of the Smith River Reservoir and Dam are owned by the State of Montana. The North Fork of the Smith River Water Users Association is in charge of the daily operation and routine maintenance of the dam. No regulatory restrictions on private property are associated with the normal operation and maintenance of the dam and reservoir.

Wilderness: No designated wilderness or wilderness study areas exist in the immediate area.

3.9 Cultural Resources

The North Fork of the Smith River Dam has been documented and recorded as a cultural resource (site number 24ME347) due to the dam's age. The dam was completed in 1936. An unpublished cultural resources inventory was completed in December, 1995 by Anthro Research of Livingston Montana. The inventory recorded 15 historic and prehistoric sites, including the dam itself. The sites are identified and described on the cultural site location map and Cultural Resource Site Forms in Appendix A.

Cultural Uniqueness and Diversity: No unique cultures or cultural diversities exist in the immediate project area.

3.10 Noise

Existing noise sources in the project area are from agricultural and recreational activities, traffic on Highway 12, and birds and animal life.

3.11 Air Quality

The air quality in the area is generally considered good. Significant reductions in visibility are generally weather related.

3.12 Transportation Facilities

The primary transportation facilities in the project area include U.S Highway 12 and several non-improved dirt access routes.

3.13 Socio - Economic

Economic activity:

Economic activity is almost entirely dependent on agriculture, with livestock production, grazing, hay and alfalfa being the major local commodities. Logging and mining occur within the Lewis and Clark National Forest and other state and private land in the area. Other economic activity is generally associated with the recreational use of the reservoir and surrounding area.

Employment:

Agricultural and agricultural related business account for the majority of the jobs in the area. Logging, mining, service sector businesses and government account for the remainder of the job base in the region.

Recreation

Recreational use at the North Fork of the Smith River Reservoir is light to moderate, with fishing the most common activity. Angling use varies depending on the local water conditions, with an average of 3,400 angler days annually, based on DFWP angling use surveys conducted every two years from 1991 to 2001. An undeveloped camping / day use area exists on the south shore of the reservoir. Other recreational activities in the area include boating, camping, picnicking, swimming, hunting, and wildlife viewing.

Communities:

Towns in the vicinity of the project include White Sulphur Springs (population 984), located 12 miles west of the dam, Checkerboard (population less than 50), located 10 miles east of the dam, Martinsdale (population less than 200), located 27 miles east of the dam and Harlowton (population 1,092) located 50 miles east of the dam.

Risks / Health Hazards:

The North Fork of the Smith River Dam has been classified as high hazard. A high hazard dam is one whose failure would endanger lives. This classification is not a reflection of the actual condition of the dam; however,

An inspection of the structure completed in 1981 by the Army Corps of Engineers classified the dam as "unsafe and in need of repair" due to deterioration and inadequate capacity of the spillway.

Emergency Response / Emergency Evacuation Plans

An Emergency Action Plan developed by the SWPB of the DNRC is in place.

Public Services / Taxes / Utilities:

Public services and utilities in the area include routine road maintenance and repair, police and fire protection, and electrical and telephone service. Small rural hospitals are located in White Sulphur Springs and Harlowton. The local tax base is primarily dependent upon agricultural land uses, outdoor recreation and related businesses.

4.0 - ENVIRONMENTAL CONSEQUENCES

This chapter is organized in the same order as Chapter 3.0, with the probable consequences of the action alternatives (effects of construction) described for each resource area, along with the probable consequences of the no action alternative. Please note that the probable consequences of the identified action alternatives are the same, since each action alternative would essentially involve the same construction activities in the same sequence. The exception is probable consequences to cultural and historic resources, fisheries, water rights and usage, and socio-economics, where differences do exist between the action alternatives. This is due to several action alternatives that would raise the storage capacity of the reservoir. This is discussed in detail in each respective section.

4.1 Geology

EFFECTS OF NO ACTION

No effect

EFFECTS OF CONSTRUCTION

No effect

4.2 Topography

EFFECTS OF NO ACTION

The potential for failure of the dam in the event of a major flood episode would be high due to the existing serious structural deficiencies with the spillway. Topography could potentially be altered downstream from the dam in the event of its failure due to the severe channel erosion and scouring that could occur from floodwaters.

EFFECTS OF CONSTRUCTION

Effects of construction on topography would be minor and very localized. The borrow area would be disturbed due to the removal of material for the cut and fill operation. The spillway area and outlet areas of the dam will

also experience disturbance because of the proposed construction. Approximately 20 acres would be disturbed surrounding the dam (see appendix A). All disturbed areas will be reclaimed upon project completion. Effects to topography are negligible and non-significant in the long term.

4.3 Water Resources

Ground Water:

EFFECTS OF NO ACTION

No effects

EFFECTS OF CONSTRUCTION

No effects to ground water are anticipated.

Surface Water:

EFFECTS OF NO ACTION

The reservoir would be lost should the dam fail.

EFFECTS OF CONSTRUCTION

Short-term impacts to reservoir and downstream water quality may occur due to possible increases in turbidity during construction. The effects would be minimized by the majority of work being performed above the water level, and the placement of erosion control structures. Long-term impacts are negligible and non-significant. Historic minimum flows would be maintained throughout the duration of the project to the greatest extent possible. Low flows have been experienced in 2000, 2001 and 2002 due to an extended severe drought.

Wetlands:

EFFECTS OF NO ACTION

No effects

EFFECTS OF CONSTRUCTION

No effects. It is not anticipated that the small wetland (less than ½ acre) formed by seepage immediately below the dam would be significantly impacted by the proposed rehabilitation project. No fill would be placed in the wetland during the construction.

Water Rights and Reservations:

EFFECTS OF NO ACTION

Water reservations and water rights could be affected if no action is taken should the spillway fail due to disrepair or excess stress on system components, such as what would be experienced during a major flood episode.

EFFECTS OF CONSTRUCTION

Alternatives 1, 1A, 4 and 5 maintain the principal spillway crest at the present top of flashboards elevation (5,488.3' feet). Storage capacity and reservoir operations will not be changed under these alternatives.

The remaining alternatives (2, 2A, 3, 3A) include raising the principal spillway crest 1.7 feet above the existing top of flashboards to elevation 5,490.0. The increased storage of 524 AF would potentially provide additional water for agricultural use.

No negative effects on water reservations and water rights to downstream water users are anticipated with any of the action alternatives. The project would have the beneficial effect of allowing for the continuing use of the reservoir for irrigation and recreation.

4.4 Soils

EFFECTS OF NO ACTION

Soils downstream from the dam could be negatively effected from excessive erosion should the dam fail.

EFFECTS OF CONSTRUCTION

Site disturbance would occur during construction, with approximately 20 acres encompassing the proposed construction zone. Some soil compaction may occur due to heavy equipment operation. Approximately 30,000 cubic yards of soil would be used in the cut and fill operation; however, no significant impacts are anticipated as a result of the construction. Effects would be minor in the short-term due to the majority of the work being performed above the water level and the placement of erosion control structures to minimize any potential surface runoff. Effects are negligible and non-significant in the long-term because of reclamation of all areas disturbed during construction.

4.5 Vegetation

EFFECTS OF NO ACTION

Vegetation would be lost due to flooding should the dam fail.

EFFECTS OF CONSTRUCTION

Some vegetation will be removed as part of the construction and for equipment access. Effects are negligible in the long-term due to reclamation and replanting / reseeding of all disturbed areas. Approximately 20 acres of vegetation would be affected by the proposed project.

Species of Special Concern:

EFFECTS OF NO ACTION

No effects

EFFECTS OF CONSTRUCTION

No threatened, endangered or species of special concern will be affected as a result of the construction.

Weeds:

EFFECTS OF NO ACTION

Noxious weeds could be spread by floodwaters should the dam ever fail.

EFFECTS OF CONSTRUCTION

An increase in noxious weeds may occur due to soil disturbance and equipment operation. Effects are negligible in the long term due to reclamation and weed control implementation.

4.6 Wildlife

EFFECTS OF NO ACTION

No effects

EFFECTS OF CONSTRUCTION

Effects would be minor to wildlife in the short-term due to the increased activity associated with the construction. Long term impacts to wildlife are negligible and non-significant.

Species of Special Concern:

EFFECTS OF NO ACTION

No effects

EFFECTS OF CONSTRUCTION

No threatened, endangered or species of special concern will be affected as a result of the construction.

4.7 Fisheries

EFFECTS OF NO ACTION

Downstream fisheries could be negatively impacted should the dam fail due to increased turbidity and erosion. The reservoir fisheries would be lost should the dam fail.

EFFECTS OF CONSTRUCTION

Alternatives 1, 1A, 4 and 5 maintain the principal spillway crest at the present top of flashboards elevation (5,488.3' feet). Storage capacity and reservoir operations will not be changed under these alternatives. Consequently, new impacts on fisheries resources will not occur.

The remaining alternatives (2, 2A, 3, 3A) include raising the principal spillway crest 1.7 feet above the existing top of flashboards to elevation 5,490.0. The increased storage of 524 AF would potentially benefit fishery resources at minimum pool.

Short-term minor impacts to fisheries in the reservoir and downstream from the dam may occur with all of the

action alternatives as a result of a temporary increase in sediments during the construction phase of the project. The effect would be minimized by the placement of erosion control structures to reduce runoff and prevent sediments from entering the reservoir and river, and from all of the work being performed above the water level. Flow levels would be maintained at historic levels to the greatest extent possible throughout the duration of the project to protect downstream fisheries resources. The effect would be temporary and end upon project completion. Long-term impacts to fisheries are negligible and non-significant.

Species of Special Concern:

EFFECTS OF NO ACTION

No effects

EFFECTS OF CONSTRUCTION

No threatened, endangered or species of special concern will be affected as a result of the construction.

4.8 Ownership and Land Use

Land Ownership:

EFFECTS OF NO ACTION

No effect

EFFECTS OF CONSTRUCTION

No short or long term negative impacts are anticipated with any of the action alternatives.

Land Use:

EFFECTS OF NO ACTION

The availability and delivery of agricultural irrigation water could be impacted if the spillway is not repaired.

EFFECTS OF CONSTRUCTION

The project will not interrupt the flow of water for agricultural irrigation. No land use changes would occur at the project site.

Government Regulatory Restrictions on Private Property Rights:

EFFECTS OF NO ACTION

No effect

EFFECTS OF CONSTRUCTION

The project will not impose any additional regulatory restrictions on private property rights

Wilderness:

EFFECTS OF NO ACTION

No effect

EFFECTS OF CONSTRUCTION

No effect (no designated wilderness or wilderness study areas exist in the area)

4.9 Cultural Resources

EFFECTS OF NO ACTION

No effects

EFFECTS OF CONSTRUCTION

Cultural resource impacts are negligible under Alternatives 1, 1A, 4 and 5, as reservoir operations would not change. The remaining alternatives would potentially cause impacts to cultural sites due to inundation from higher water levels associated with raising the crest height of the dam and require mitigation. The cultural resources that exist near the project area above the new high water level associated with Alternatives 2, 2A, 3 and 3A would not be impacted by the construction. The dam has been recorded as an historic structure due to its age (site number 24ME346). The North Fork of the Smith River Dam will be maintained and operated into the foreseeable future. The general shape and structure of the dam will not be significantly changed with any of the action alternatives. Repairs, maintenance and modifications will be needed over time to protect public health and safety, and to insure the continued use of the reservoir for agriculture and recreation. The DNRC Archeologist has recommended that the dam is eligible for inclusion on the National Register of Historic Places under Criterion A. Any cultural resources discovered will be preserved or mitigated by the implementation of measures recommended by the SHPO.

Cultural Uniqueness and Diversity:

EFFECTS OF NO ACTION

No effects

EFFECTS OF CONSTRUCTION

No effects (no unique cultures or cultural diversities would be impacted by the project)

4.10 Noise

EFFECTS OF NO ACTION

No effects

EFFECTS OF CONSTRUCTION

Noise levels will increase temporarily during the construction period. The increased noise will end upon completion of the project.

4.11 Air Quality

EFFECTS OF NO ACTION

No Effects

EFFECTS OF CONSTRUCTION

Some pollutants and odors will occur as a result of the equipment operation. The effects will be negligible and end with the completion of the project.

4.12 Transportation Facilities

EFFECTS OF NO ACTION

Portions of U.S. Highway 12 and various county roads downstream from the dam could be flooded should the dam fail.

EFFECTS OF CONSTRUCTION

Increased construction related traffic might be experienced on U.S. Highway 12. The effect would be minimal and cause no disruptions in regular traffic flow, or create any safety concerns. These impacts will be mitigated by the implementation of traffic control and safety procedures as recommended by the Montana Department of Transportation and the County Road Supervisor. The effect would be temporary and end upon completion of the project.

4.13 Socio – Economic

Economic Activity:

EFFECTS OF NO ACTION

Irrigation water flows could be disrupted if the dam's infrastructure is allowed to further deteriorate, thus potentially affecting the agricultural economy of the surrounding area.

EFFECTS OF CONSTRUCTION

Alternatives 1, 1A, 4 and 5 maintain the principal spillway crest at the present top of flashboards elevation (5,488.3' feet). Storage capacity and reservoir operations will not be changed under these alternatives.

The remaining alternatives (2, 2A, 3, 3A) include raising the principal spillway crest 1.7 feet above the existing top of flashboards to elevation 5,490.0. The increased storage of 524 AF would potentially provide additional water for agricultural use. This could have a beneficial effect on the area's agricultural based economy.

There would be no negative effect to the area's economy from the construction associated with any of the action alternatives. There would be a temporary beneficial increase in economic activity associated with the construction (e.g. motel and local restaurant use, temporary project related jobs, contractor purchases, etc.).

Quantity and Distribution of Employment:

EFFECTS OF NO ACTION

Local jobs related to agriculture could be negatively impacted should the dam fail.

EFFECTS OF CONSTRUCTION

Additional local employment opportunities may result from the construction. The jobs would most likely be temporary in nature and exist for the duration of the project.

Recreation:

EFFECTS OF NO ACTION

Recreational opportunities associated with the reservoir would be lost upon failure of the dam.

EFFECTS OF CONSTRUCTION

Some recreational use may be disrupted by the construction activity (i.e. fishing, boating, picnicking and camping). The area receives light to moderate recreational use throughout most of the year. Visitors to the area may also experience an increase in noise levels due to heavy equipment operation. One camping / access area within the construction zone would be temporarily closed for the duration of the project. These impacts are minor, temporary and non-significant in nature and would end with the completion of the project.

Community Impacts:

EFFECTS OF NO ACTION

White Sulphur Springs, population 984, located downstream from the dam could be seriously impacted during a flood episode due to the unsafe condition of the spillway, which increases the chances of structural failure of the dam.

EFFECTS OF CONSTRUCTION

No negative impacts are anticipated.

Risks / Health Hazards:

EFFECTS OF NO ACTION

White Sulphur Springs, population 984, located downstream from the dam could be seriously impacted during a flood episode due to the unsafe condition of the spillway, which increases the chances of structural failure of the dam.

EFFECTS OF CONSTRUCTION

The risk of failure of the dam would be greatly reduced with the proposed construction.

Emergency Response / Emergency Evacuation Plans

EFFECTS OF NO ACTION

No effect

EFFECTS OF CONSTRUCTION

No effect - The current Emergency Action Plan will not change as a result of the construction.

Public Services / Taxes / Utilities:

EFFECTS OF NO ACTION

Telephone and power lines could be washed out in various locations should the dam fail.

EFFECTS OF CONSTRUCTION

No effect

5.0 CUMMULATIVE EFFECTS

The EA to this point has discussed impacts that could result solely from the proposed rehabilitation project. This section will discuss impacts that may occur when the rehabilitation project is added cumulatively to other potential changes or developments.

No specific projects have been identified that, taken cumulatively with the dam rehabilitation, will cause any significant, long-term environmental impacts. Impacts associated with increased stream sedimentation could occur should any new, large-scale mining or logging operations or major road construction occur within the North Fork of the Smith River drainage. No projects or operations of this nature have yet been identified or are anticipated.

EFFECTS OF NO ACTION

No significant cumulative environmental impacts are anticipated at the present time. The impacts of no action involve increased risks to property and lives downstream and the possible disruption of irrigation water to downstream water users. There would be an increasing danger of failure of the dam should a major flood episode occur due to the existing inadequate spillway capacity. The no action alternative could also negatively

affect the use of the reservoir for recreational purposes. This could potentially have a negative affect to the area's economy, which is heavily dependent on agriculture and outdoor recreation.

EFFECTS OF CONSTRUCTION

All impacts cited are minor, temporary in nature, non-significant, and will end with the completion of the project. No cumulative environmental effects of the construction are anticipated. All areas disturbed will be reclaimed upon completion of the project. The project as proposed will not conflict with any local, state or federal laws, regulations or formal plans, and will not establish a precedent or likelihood that future actions with potential significant environmental impacts will be proposed. It is anticipated that the proposed action will not generate any substantial debate or controversy about the nature of any potential or identified impacts. The project as proposed would have long-term positive impacts, as detailed in the Comparison Table on page 25.

6.0 PREFERRED ALTERNATIVE AND PROPOSED MITIGATION

6.1 Preferred Alternative

The preferred alternative is Alternative 5, as discussed below, along with an explanation of why this alternative was selected over the other proposed action options.

Please note that the final construction design of the preferred alternative, as implemented, may vary somewhat from that described in the feasibility study. This is normally experienced in projects of this type due to problems and/or issues encountered during construction that necessitate engineering and design changes to fulfill project goals, objectives, and stay within established budgets and schedules. Any variances in the construction design and engineering of the project would not change any of the identified environmental affects or alter the significance of any identified impacts since the construction sequence, disturbed areas, access routes and construction schedule would not change.

Alternative 1 - No Action

The no action alternative would result in continued degradation of the dam and associated structures, possibly resulting in partial or total failure of the dam in the event of a flood episode, thereby increasing the threat to property and people living downstream. Downstream water quality could be negatively impacted due to the erosion and turbidity that would result from partial or total failure of the dam, with possible negative impacts to aquatic habitats in the North Fork of the Smith River and the Smith River. Water available for agricultural and recreational uses could also be negatively impacted if no action is taken. The no action alternative would not be acceptable due to the ever-increasing risk to the public and property downstream from the dam.

Action Alternatives

Seven alternative spillway configurations were presented in HKM's 1995 Feasibility Report. The original alternatives were designed to meet the "probable maximum flood" criteria for dam safety standards in effect at that time (0.75 of PMF of 40,000 cfs). The spillway configuration alternatives had to pass 30,000 cfs to meet these standards. Consequently, these alternatives represent configurations that are larger than now necessary to pass the design flood. Due to recent changes in criteria for setting Montana Dam Safety spillway

standards, an eighth alternative was developed by State Water Projects engineers in early 2002 to meet the new Montana spillway standards.

Although the original HKM alternatives were designed to pass a larger flood event than is now necessary, the alternatives were still considered in a relative sense for purposes of comparison and discussion in this EA. If the various configurations in the alternatives were downsized to meet current spillway standards, the most cost effective alternative would still be alternative #5 (see Appendix B).

The new alternative 5 spillway configuration is designed to pass an 18,000 cfs design storm (to account for future growth). This is twice the minimum occurrence interval. Alternative 5 is a modified version of HKM's alternative #4.

Alternatives 1, 1A, 4 and 5 maintain the principal spillway crest at the present top of flashboards elevation (5,488.3' feet). Storage capacity and reservoir operations will not be changed under these alternatives. Consequently, new impacts on wildlife, fisheries or cultural resources will not occur.

The remaining alternatives (2, 2A, 3, 3A) include raising the principal spillway crest 1.7 feet above the existing top of flashboards to elevation 5,490.0. Although the increased storage of 524 AF would benefit the fishery at minimum pool, and potentially benefit the local agricultural based economy by the availability of additional irrigation water, the raise in normal pool elevation would impact cultural resource sites around the perimeter of the reservoir.

Preferred Alternative 5

The preferred alternative 5 utilizes the labyrinth crest principal spillway with an adjacent rock channel auxiliary spillway as in HKM's alternative 4 (Figures 4 & 5). However, the fuse plug dike is not used in the auxiliary rock channel because spillway design flood standards are achieved without the additional excavation and installation costs. The labyrinth crest elevation would be equal to the present top of the flashboards. The spillway would be designed for a flow capacity of 18,500 cfs (50 loss of life factor) with the reservoir water surface at the present top of dam. No tower modifications are required for this alternative.

Cost estimates were originally prepared for seven alternatives by HKM based on 1995 unit prices. The original seven alternatives were designed for passing a 30,000 cfs flood event and the greater associated construction costs reflect the larger design criteria. Cost estimates based on current unit prices and quantities for the preferred alternative 5 are presented in appendix B. Alternative 5 represents the most cost effective option to meet the new spillway standards while factoring in a projected population growth at double the present population. The cost of the alternatives 2, 2A, 3 and 3A are significantly higher than the preferred alternative (see appendix B). The benefits to fisheries and economic activity by the increased storage capacity is offset by the significantly higher construction costs, and the negative impacts to cultural resources surrounding the reservoir. The benefits of increased storage would most likely not be experienced every year due to the highly variable hydrologic conditions in the basin.

The preferred alternative would not change existing operations at the project, minimizes any potentially negative environmental impacts to the greatest extent possible, and provides the most economically feasible alternative for rehabilitation.

6.2 Proposed Mitigation

Water Quality Protection:

The proposed project would include the implementation of erosion and stormwater containment and control measures, including, but not limited to: silt fencing, straw bales, check dams, drain inlet protection, dry ponds,

and drainage swales. These structures would be designed to prevent and/or minimize non-point water pollution. Best management practices would be also utilized, following the guidelines in the Montana Sediment and Erosion Control Manual (DEQ 1996).

Fisheries: To the greatest extent possible, historic minimum flows would be maintained throughout the duration of the project to protect downstream fisheries resources.

Recreation: Recreationists would be informed of any hazards associated with the project site by the use of on-site signs. News releases would also be issued and published in local newspapers informing the public of potential hazards or construction related recreational restrictions. The information and hazard signs would be no smaller than 4 feet by 6 feet in size, and positioned in prominent locations that are visible to recreationists.

6.3 Need for an EIS

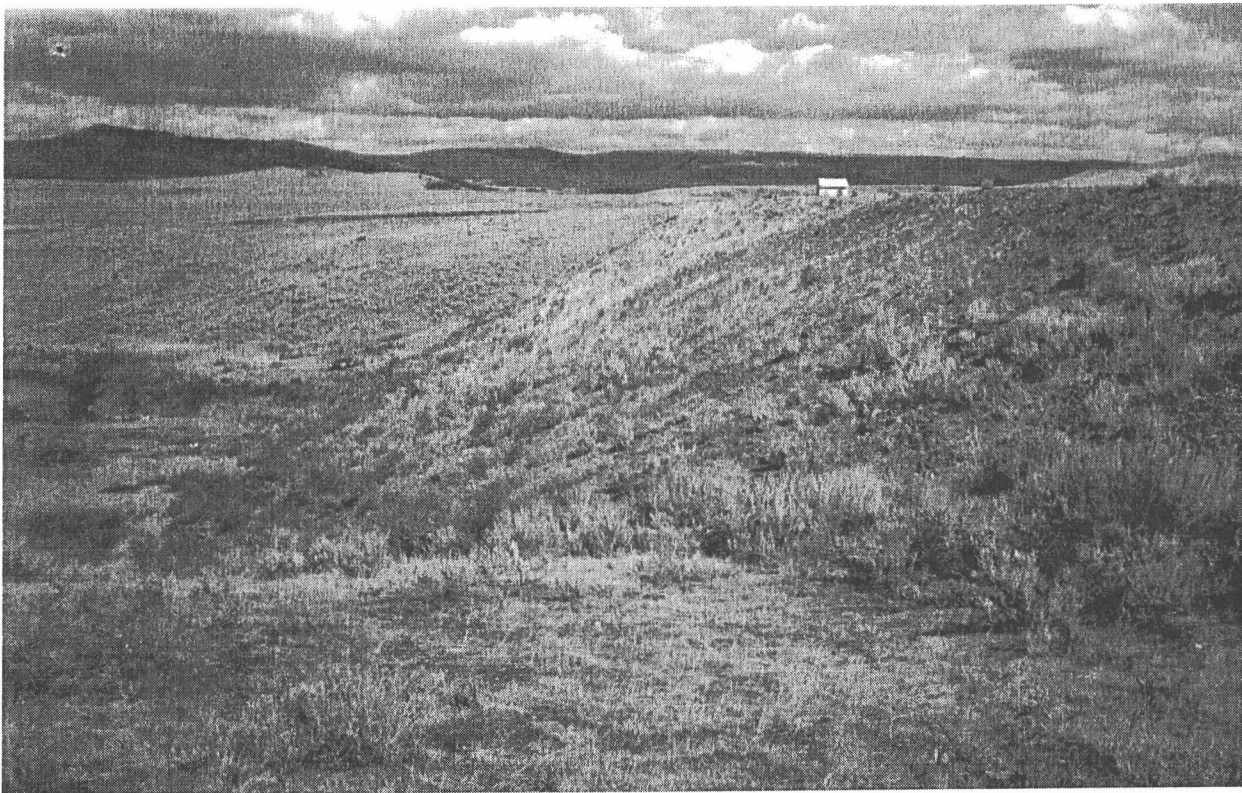
Because no significant impacts were identified, DNRC believes this EA would be sufficient to comply with the MEPA and that an EIS would not be required. A comparison table for the action alternatives and the no action alternative follows: Note that all identified minor impacts are short-term and would end upon, or shortly after, completion of the project.

Comparison Table – No Action and Action Alternatives:

RESOURCE	ALTERNATIVE	
	No Action	Action
Geology	None	None
Topography	Potentially Adverse	Minor
Water Resources		
Groundwater	None	None
Surface Water	Potentially Adverse	Minor
Wetlands	None	None
Water Rights	Potentially Adverse	None
Soils	Potentially Adverse	Minor
Vegetation	Potentially Adverse	Minor
Species of Special Concern	None	None
Weeds	Potentially Adverse	Minor

NORTH FORK OF THE SMITH DAM REHABILITATION PROJECT - Preliminary Schedule

TASK	2003												2004											
	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR			
Consultant Selection																								
Final Design																								
Collect Additional Data if Needed																								
Final Design Configuration																								
Design Review																								
Prepare Construction Documents																								
Construction Bidding & Award																								
Construction																								
Reservoir Drawdown																								
Spillway Demolition																								
Spillway Excavation																								
Spillway Construction																								
Drains																								
Reclamation and Restoration																								
RRGL Grant & Loan (HB 6 & 8) Funding																								
Sign Grant/Loan Agreements																								
Request Grant Fund transfer to Org. No.																								
Request Loan Activation																								
CARDD Quarterly Reports																								



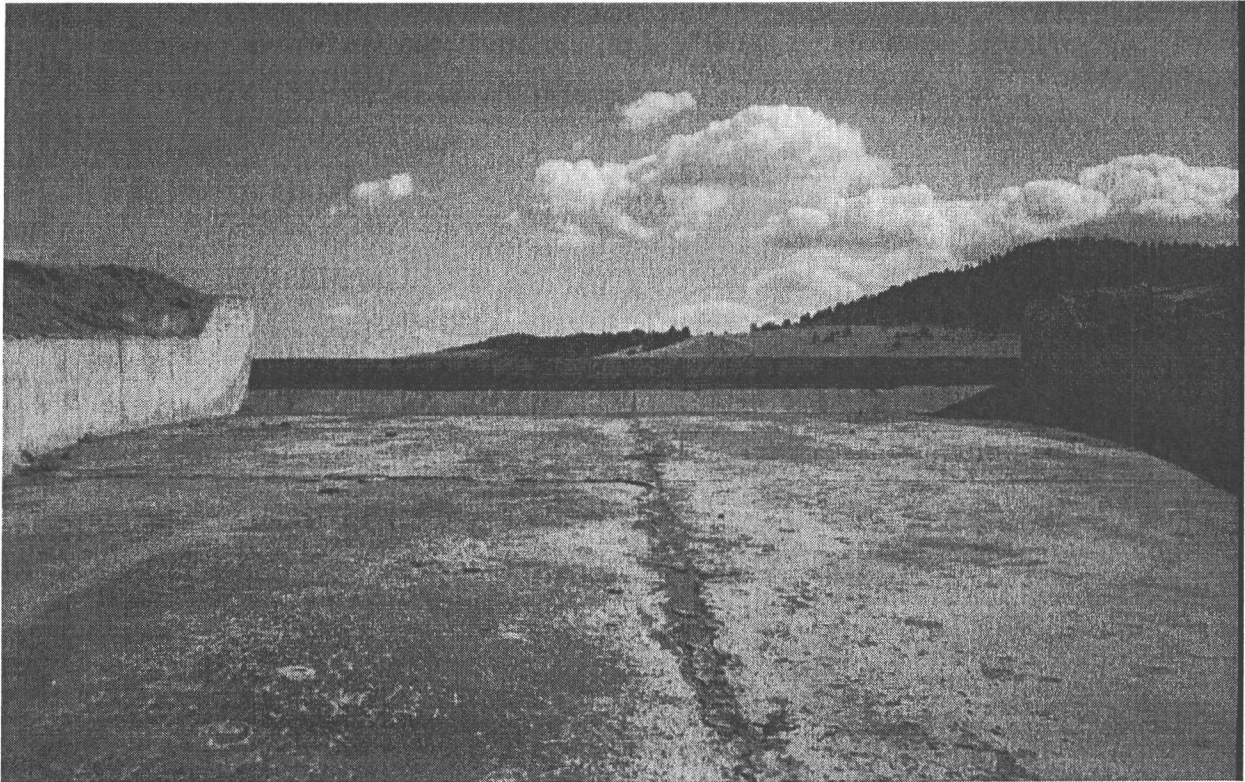
Downstream face of dam, looking north



Upstream face of dam, looking north



Existing outlet structure



Existing spillway

Appendix D

NORTH FORK SMITH RIVER DAM

Fact Sheet

PROJECT DESCRIPTION

- ◆ Located on the North Fork of the Smith River in Meagher County
- ◆ 10 miles East of White Sulphur Springs
- ◆ Owned by DNRC & managed by SWPB
- ◆ Operated by Smith River WUA since 1936

- ◆ Project consists of:
 - ◆ Earthen Embankment Dam, 84 feet high
 - ◆ Concrete chute spillway
 - ◆ Gated, reinforced concrete outlet conduit

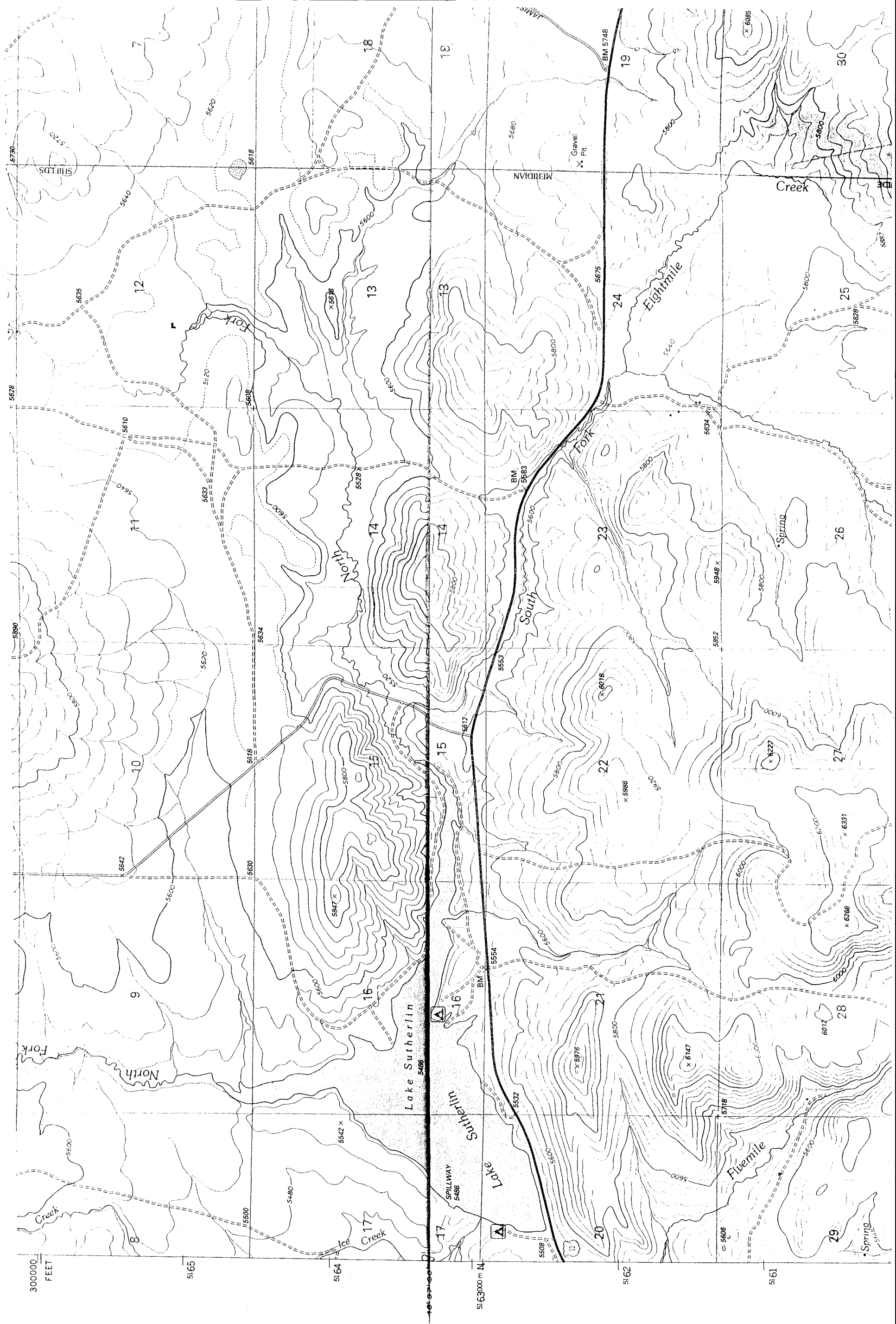
- ◆ Original construction completed in 1936
- ◆ Normal storage is 11,500 acre-feet
- ◆ 29 water users have 40 contracts and irrigate approximately 11,000 acres with one canal (Southside Canal; 13.2 miles long)
- ◆ The dam is a "high hazard" structure, which means that its failure could cause loss of life. Numerous roads, bridges, and utilities are located in the flood plain. White Sulphur Springs, (pop. 1,018) would begin flooding approximately 3 hours after failure of the dam.

PROJECT DEFICIENCIES

- ◆ The North Fork Smith River Dam suffers from several deficiencies and cannot safely route the required inflow design flood for a dam of its size and hazard classification, as required by the MT Dam Safety Act.
- ◆ Severe concrete deterioration exists in the spillway floor and walls, and major structural concrete replacement is required to correct the deficiencies.
- ◆ Excessive seepage threatens structural integrity

PROPOSED REHABILITATION

- ◆ New structural two-cycle labyrinth weir concrete spillway in same location as the old one
- ◆ Raising and leveling the dam crest
- ◆ Replacing the outlet works terminal structure with a new structure of similar design.
- ◆ Add a rock lined auxiliary spillway channel
- ◆ Install new drains for seepage control
- ◆ Estimated cost: \$908,000
- ◆ Funding sources include proposed RRGL Grant and Loan, DNRC in-kind contribution, and Water Storage Account revenue.
- ◆ The Water Users will increase contract water charges by approximately \$3.10 per share to service debt on the new \$425,000 loan.



HK&M ASSOCIATES
ENGINEERS-PLANNERS

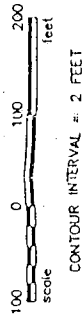
2727 Central Avenue
P.O. Box 31318
Billings, Montana 59107 • Bozeman & Miles City, Montana
Branch Offices:
• Sheridan, Wyoming
•

NORTH FORK SMITH RIVER DAM REHABILITATION
MEAGHER COUNTY, MONTANA
FINISHED TOPOGRAPHY

• Project No. B4007137 • ALT-AN-DWG • Date APR 1994 • Designed JHT • Drawn GAE • Checked JHT • Approved
No. Revision By Date
WARNING
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

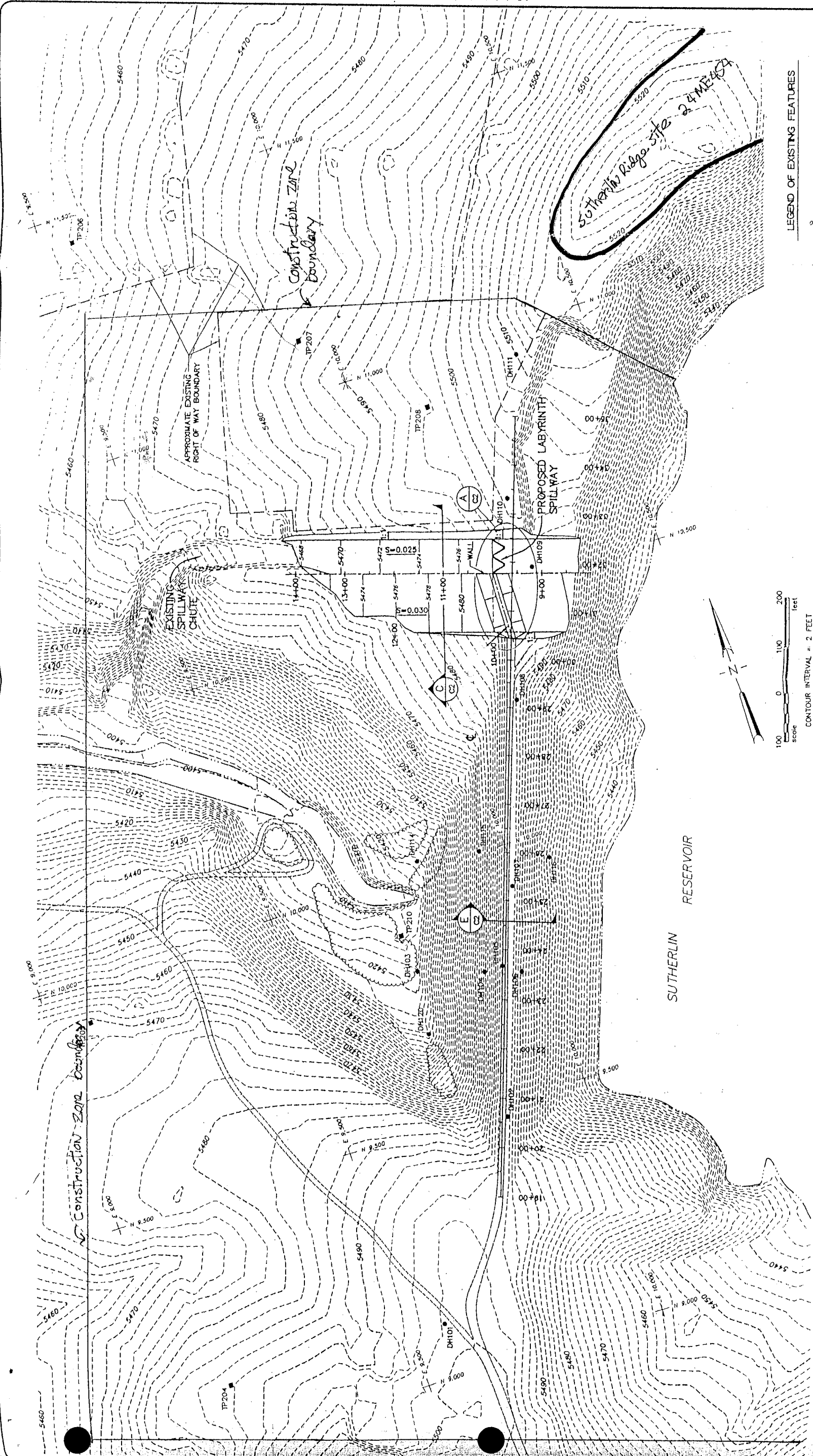
LEGEND OF EXISTING FEATURES

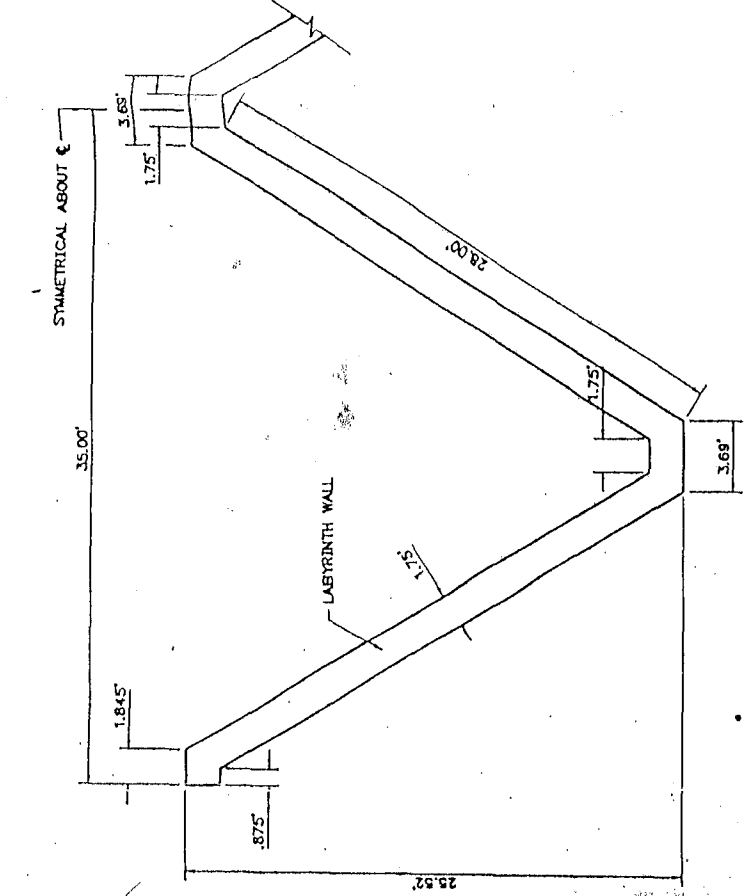
- COORDINATE GRID TICK
- GROUND SURFACE CONTOURS
- EDGE OF ROAD OR TRAIL
- EDGE OF WATER
- TREES OR BUSHES
- CONCRETE STRUCTURES
- DRILL HOLE LOCATION
- TEST PIT LOCATION



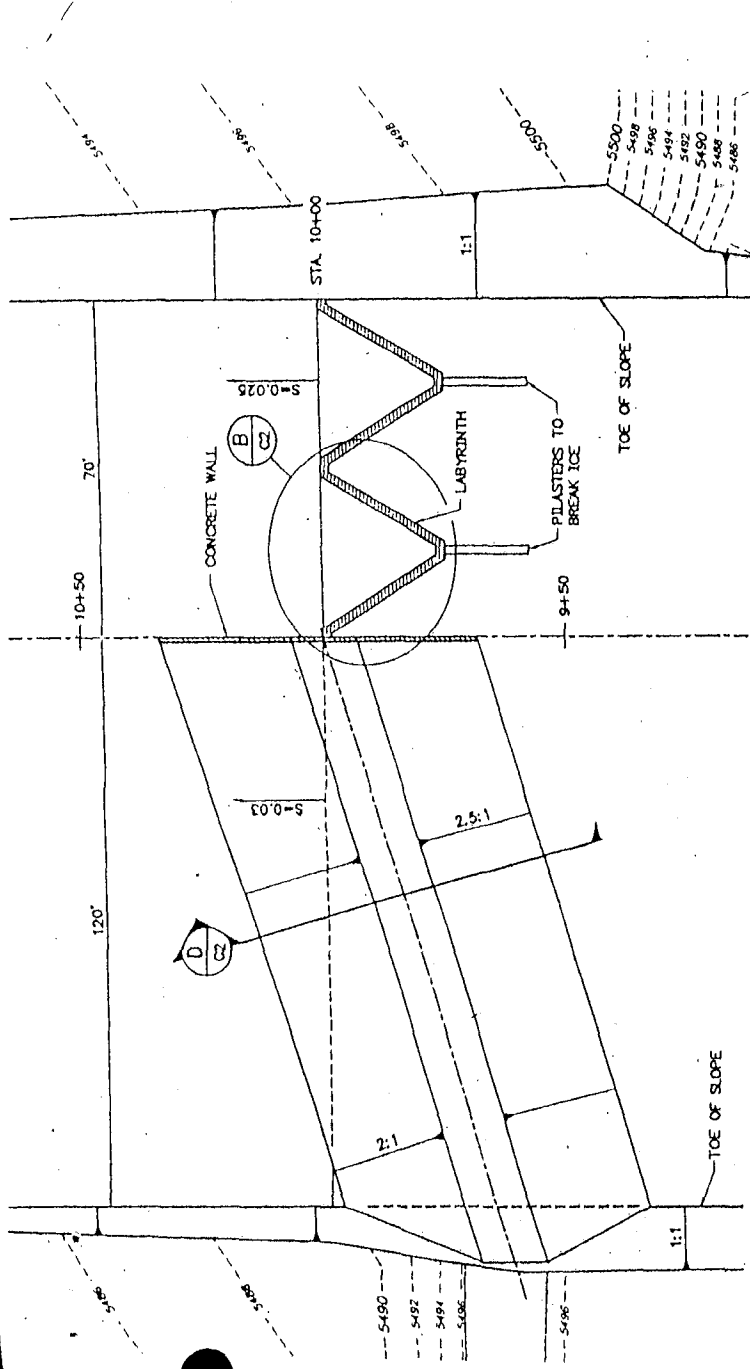
ALTERNATIVE 5 FEATURES

TOP OF DAM ELEV.=5498.0
LABYRINTH SPILLWAY CREST ELEV.=5488.3
CREST WIDTH = 70 FT.

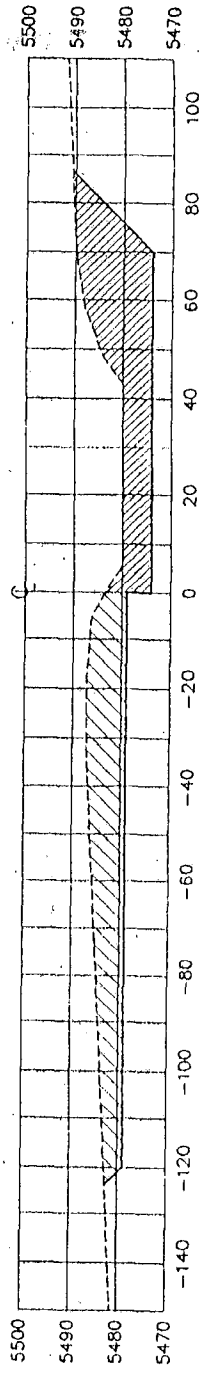




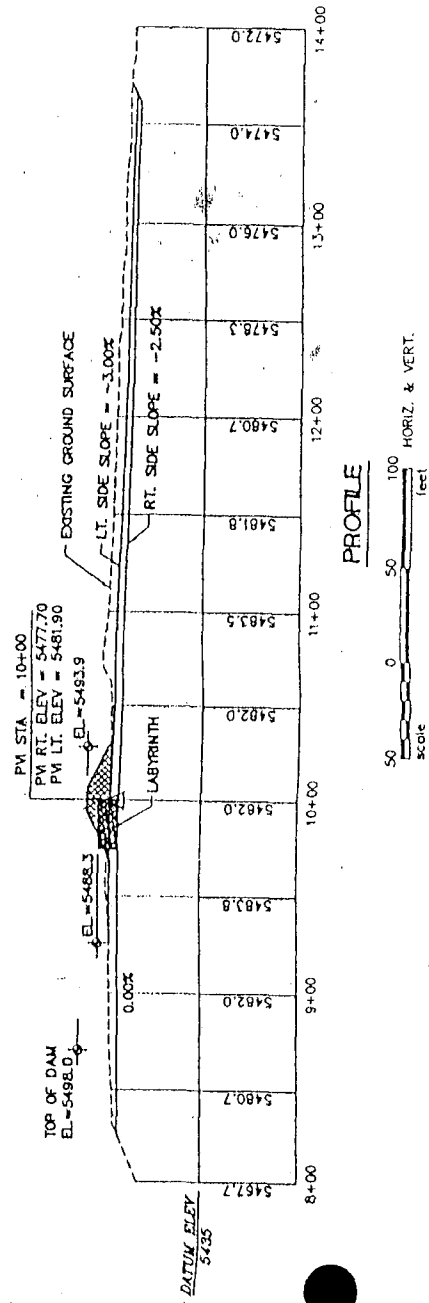
B DETAIL
C2 LABYRINTH DIMENSIONS



A DETAIL
C2 LABYRINTH SPILLWAY



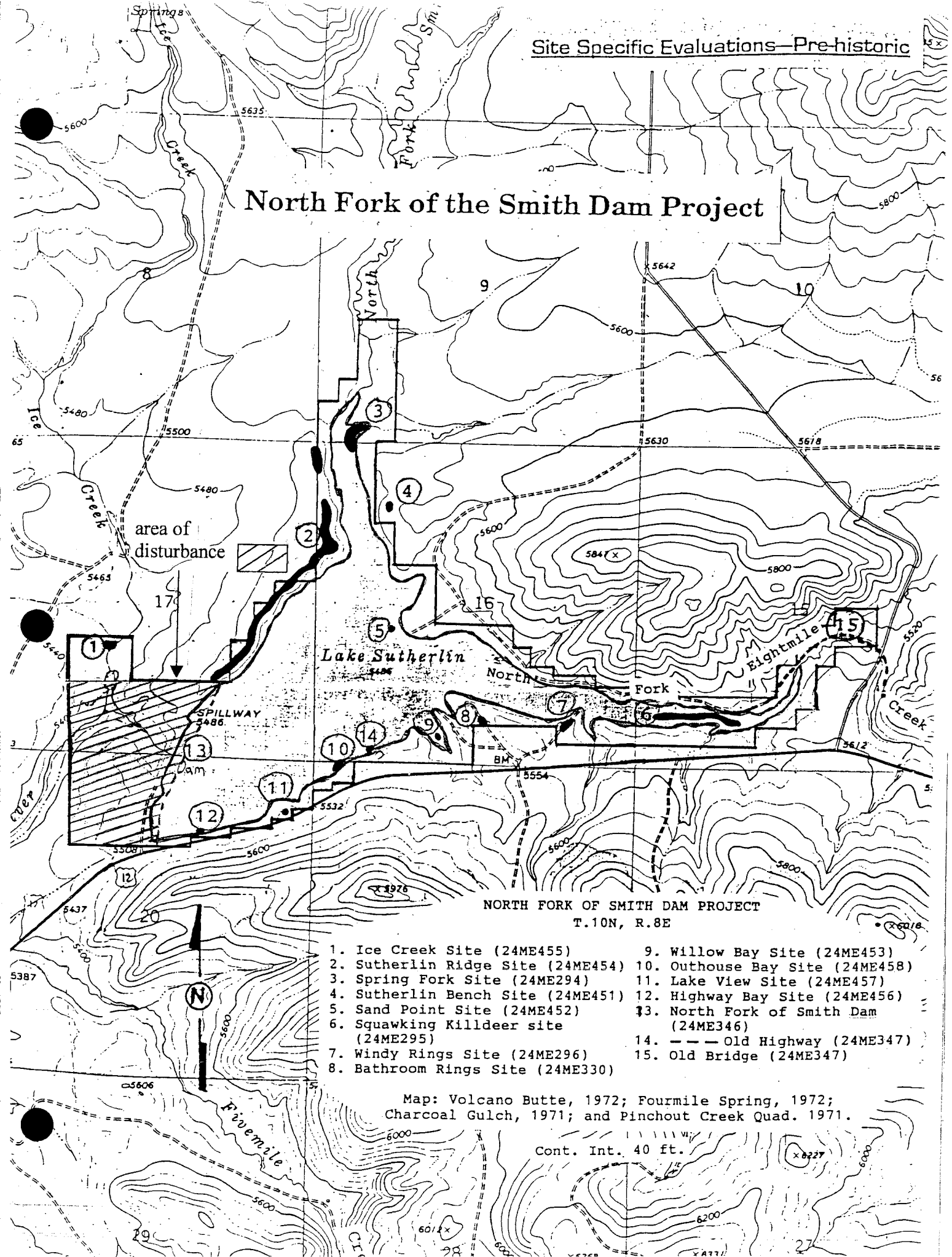
C	TYPICAL SECTION
C2	LABYRINTH SPILLWAY



PROFILE



North Fork of the Smith Dam Project



Project Budget

Estimated Total Project Cost - Approximately \$908,000 (including in-kind)

The costs of this project were originally estimated for seven rehabilitation alternatives in HKM's 1995 draft feasibility study. A new preferred alternative with associated quantities and updated unit costs was developed by State Water Projects engineering staff to meet new Montana Dam Safety spillway standards (Alternative 5). The individual cost breakdowns for the preferred alternative 5 are included in this section in Table 1.

The project is estimated to cost approximately \$825,000 based on the updated feasibility calculations. This figure includes design and construction costs to be incurred in FY 2004 and 2005, commencing in July 2003. The design and construction cost estimates account for spillway demolition / new construction, auxiliary spillway excavation, drain installation and the embankment crest raise and leveling. An inflation factor of 8% over 2 years was applied, as well as a 20% contingency.

Engineering design and construction administration costs are estimated at \$100,000, or about 12% of the projected total budget. Construction, which accounts for about 65% of the funding request at \$537,625 would not begin until final design work, environmental permitting, and cultural resources work is completed.

A summary of funding sources and amounts includes the following:

EPP – FY2004 & 2005 (Water Storage Account)	\$300,000
Renewable Resource Loan	\$425,000
Renewable Resource Grant	\$100,000
Total	\$825,000

Total estimated project costs (including in-kind) are approximately \$908,000

NORTH FORK SMITH DAM REHABILITATION - COST ESTIMATE

Alternative 5

Two Cycle Labyrinth Spillway, without fuse plug

Assumes 70-foot primary spillway and 100-foot rock auxiliary spillway

PRELIMINARY

Item No.	Item	Quantity		Unit Cost	Total Cost
1	Raise Embankment				
A	Excavation / Stripping	1000	CY	\$3.50	\$3,500
B	Rock Fill & Riprap	200	CY	\$25.00	\$5,000
C	Riprap Filter Gravel	200	CY	\$25.00	\$5,000
D	Road Surfacing Gravel	750	CY	\$30.00	\$22,500
E	Embankment Drains	800	LF	\$30.00	\$24,000
2	Modify Spillway				
A	Remove existing spillway	1	LS	\$50,000	\$50,000
B	Concrete Flatwork	120	CY	\$250.00	\$30,000
C	Concrete Walls	150	CY	\$450.00	\$67,500
3	Excavate Auxiliary Spillway				
A	Rock Excavation	20,000	CY	\$13.00	\$260,000
				Subtotal	\$467,500
4	Mobilization & Misc	15%			\$70,125
	Base Construction Cost				\$537,625
5	Cultural Res. Mitigation		LS		\$20,000
6	Design & Constr. Admin		LS		\$100,000
7	Contingencies	20%			\$107,525
Total Project Cost					\$765,150
8	Inflation (2 yrs @ 4%)	8%			\$61,212
TOTAL PROJECT COST (FY2004)					\$826,362

Table 1

North Fork of the Smith Dam Rehabilitation
DNRC In-Kind Cost Estimate

Administrative and Technical Support:

- 0.8 FTE for approximately 18 months
- 2080 hrs. per year
- average administrative and technical support rate is approximately \$30.00 per hour

$(0.8 \text{ FTE}) \times (2080 \text{ hrs. / yr.}) \times 1.5 \text{ yrs.} = 2496 \text{ hrs.} \times \$30.00 =$

Sub Total \$74,880

Travel:

- 90 days field time primarily during construction
- 20 overnights
- 190 miles round trip from Helena
- assume rental rate of \$0.34 per mile

$75 \text{ days} \times 190 \text{ miles} \times \$0.34 =$

Sub Total \$4,845

$\text{Motel at } 20 \text{ nights} \times \$36.40 =$

Sub Total \$728

$\text{Meals at } \$23/\text{day} \times 90 \text{ days} =$

Sub Total \$2,070

Estimated Total \$82,523

RESOURCE	ALTERNATIVE	
	No Action	Action
Wildlife	None	Minor
Species of Special Concern	None	None
Fisheries	Potentially Adverse	Minor
Species of Special Concern	None	None
Ownership/Land Use	Potentially Adverse	Minor
Cultural Resources	None	None
Unique/Diversity	None	None
Noise	None	Minor
Air Quality	None	Minor
Transportation	Potentially Adverse	Minor
Socio-Economic		
Economic Activity	Potentially Adverse	Minor
Quantity / Distribution of Employment	Potentially Adverse	Minor
Recreation	Potentially Adverse	Minor
Communities	Potentially Adverse	Minor
Risks / Health Hazards	Potentially Adverse	None
Emergency Response / Emergency Evacuation Plans	None	None
Public Services/ Taxes / Utilities	Potentially Adverse	None
Cumulative Impacts	None	None

6.4 Project Implementation

It is anticipated that this project will be completed with a traditional design-bid-build sequence. The DNRC State Water Projects Bureau will manage the project. A qualified consultant selected in conformance with state laws and regulations will complete the design and construction administration. One or two prime contractors selected through a competitive bidding process will complete the construction. Beginning in August 2003, the DNRC will begin the project with the selection of a consultant for the design and construction administration. A design / bid package would be developed in the fall of 2003, with a construction contractor selected in the winter or spring of 2004. Construction would begin in the summer of 2004, with project completion scheduled for the fall of 2004. The new spillway would be operational prior to spring runoff in 2005.

The DNRC State Water Projects Bureau will provide staff for management and oversight of the project. As previously noted, the design, construction administration and construction will be contracted services. The details of the administration and schedule will be refined during final design. Appendix C provides a proposed project development schedule.

7.0 GLOSSARY OF TERMS

100-year flood: The 100-year flood is a flood event that has a one-in-100 chance of being equaled or exceeded in any year.

Acre-foot: The volume of water that would cover an area equivalent to 1 acre, 1 foot deep, or 43,560 cubic feet (325,851 gallons).

Aggregate: Sand and gravel materials used to make concrete or roller-compacted concrete or used to surface roads.

Aquatic Habitat: The place in which water-dependent plants or animals normally live.

Aquifer: A water-bearing layer of permeable rock, sand, or gravel.

Borrow source: An excavated area where material may be mined/removed for use as fill at another location.

Breach: A break in a dam embankment created by erosion of the embankment materials or by excavation to remove a portion of a dam. A catastrophic breach would be due to dam failure and would release the entire storage content of the reservoir in a brief period. A controlled breach would drain the reservoir to reduce the storage capacity over an extended period.

CFS: Measure of water flow rate in cubic feet per second. One cfs is equal to about 450 gallons per minute.

Chute: The face or channel of a dam's spillway.

Crest: The top face of a dam's spillway or dam itself.

Cubic yard: Volume measurement used in construction equal to a 3-foot cube or 27 cubic feet or 202 gallons.

Cumulative effects: A general estimation of the effects of project impacts in combination with other past, present, and reasonably foreseeable future developments.

Emergency spillway: A spillway structure used to pass infrequent or large flows. Earth-lined emergency spillways may suffer damage from use.

Endangered species: A wildlife species that is listed by the U.S. Fish and Wildlife Service as being in danger of extinction throughout all or a significant portion of its range.

Floodplain: Land that may be submerged by flood waters; a plain built up by stream deposition.

Full pool: Reservoir at spillway crest.

High hazard: A dam whose failure would result in the loss of life; not a statement of condition.

Inflows: Water flowing into a reservoir.

Lithic: Relating to or made of stone.

Long-term impact: Impacts that occur beyond the actual construction timeframes.

Mitigation: Measure taken to lessen an impact.

Outflow: Releases from a project made through the outlet works or spillway.

Prehistoric: Existing in times predating written history.

Primary gate: Gate in the outlet works of a dam used to make normal releases.

Probable maximum flood: The largest possible precipitation event expected in an area based on the most severe combination of hydro-meteorological conditions that are considered reasonably possible for the drainage basin under study.

Roller-compacted concrete (RCC): A concrete mix used to construct gravity dams, placed with conveyors and/or heavy equipment, and compacted with large vibratory rollers.

Secondary gate: Gate in the outlet works of a dam reserved for emergency operation or used during maintenance of the primary gate.

Spillway: Structure used to discharge large quantities of water around the dam without damaging the dam.

Spillway Design Flood: The peak flood flow used to size the maximum discharge capacity of a dam's spillway.

Stilling basin: An open structure or excavation at the foot of a chute or spillway to reduce the energy of the descending stream.

Threatened species: A wildlife species that is federally listed because it is likely to become endangered in the near future.

Total maximum daily load (TMDL): In practice, TMDLs are water quality restoration targets for point and non-point pollution that are contained in water quality restoration plans or in a permit.

Turbidity: Condition of water carrying suspended sediment.

Wetlands: Lands that are generally covered by shallow water or where the ground water table is very close to the surface. Wetlands are generally defined as marshland and riparian habitat.

8.0 REFERENCES

1. Water Resources Survey, Meagher County, MT State Engineers Office, July 1958
2. Phase 1 Inspection Report, National Dam Safety Program - North Fork of Smith River Dam and Reservoir, Meagher County, MT, MT-6, Hoskins-Western-Sonderegger, Inc. under contract for the U.S. Army Corps of Engineers, Seattle District, 1981
3. North Fork of the Smith River Dam Rehabilitation Feasibility Study Report, HKM Engineering, March 1995.
4. Cultural Resource Investigations: North Fork of the Smith River Dam, Meagher County, Montana Anthro Research, Livingston Montana (unpublished). Developed for MSE-HKM, Inc. December 1995
5. Montana Sediment and Erosion Control Manual - MT Water Quality Bureau, Department of Environmental Quality, Roxann Lincoln, May 1996.
6. A Guide to the Montana Environmental Policy Act - Environmental Quality Council, John Munding and Todd Everts, October 2000.
7. Mt Department of Natural Resources and Conservation Historic Cultural Resources Site Form - North Fork Smith River Dam and Reservoir, MT DNRC Trust Lands Division, Patrick Rennie and Jim Domino. March 2002
8. North Fork of Smith River Dam Rehabilitation - A Proposal Submitted to the Renewable Resource Grant and Loan Program, MT DNRC, May 2002
9. Smith River Basin Permit and Change Application Supplemental Environmental Assessment - Montana Department of Natural Resources and Conservation, Water Management Bureau, February 2003.
10. Montana Department of Environmental Quality - TMDL 303-d list, Data Query and Reporting System - N. Fork Smith River and North Fork Smith River Reservoir, May 2003.
11. MT Natural Heritage Program - Data Query on Plant and Animal Species of Special Concern, May 2003.
12. MT Fish, Wildlife and Parks Fisheries Information System, North Fork Smith River and Lake Sutherland (N. Fork Smith River Reservoir) - Data Query, May 2003

9.0 LIST OF PREPARERS

Jim Domino, DNRC - natural resources, socio-economic issues/impacts, MEPA compliance
Dolores Eustice, DNRC - editorial review, EA distribution
Rob Kingery, DNRC - engineering supervision and review, budgets, project timeframes
Kevin Smith, DNRC - budgets, project timeframes, administrative oversight
Craig Stiles, DNRC - budgets, project timeframes, grants and funding information
Art Taylor, DNRC - engineering review and site evaluation, construction timeframes

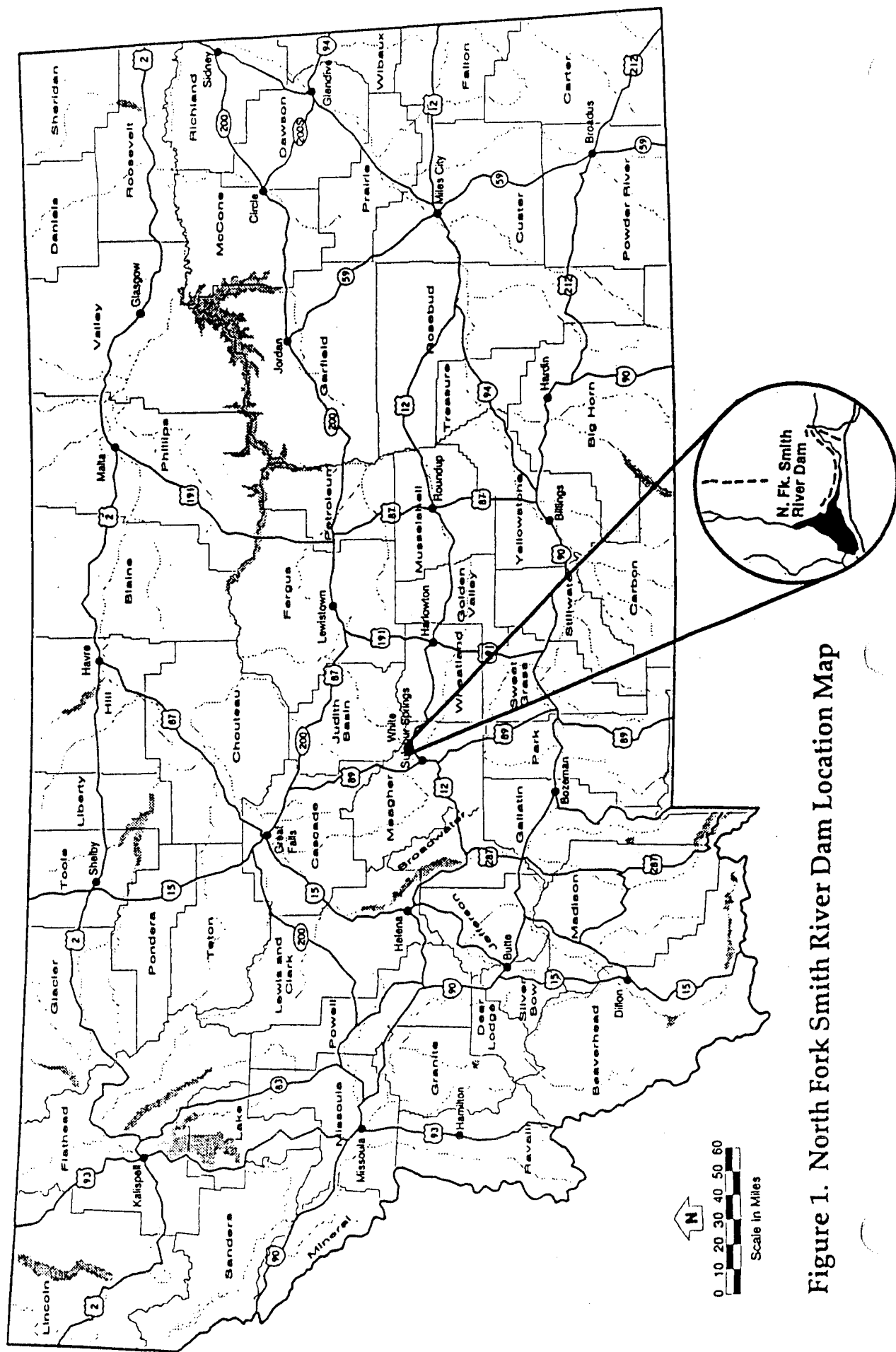


Figure 1. North Fork Smith River Dam Location Map

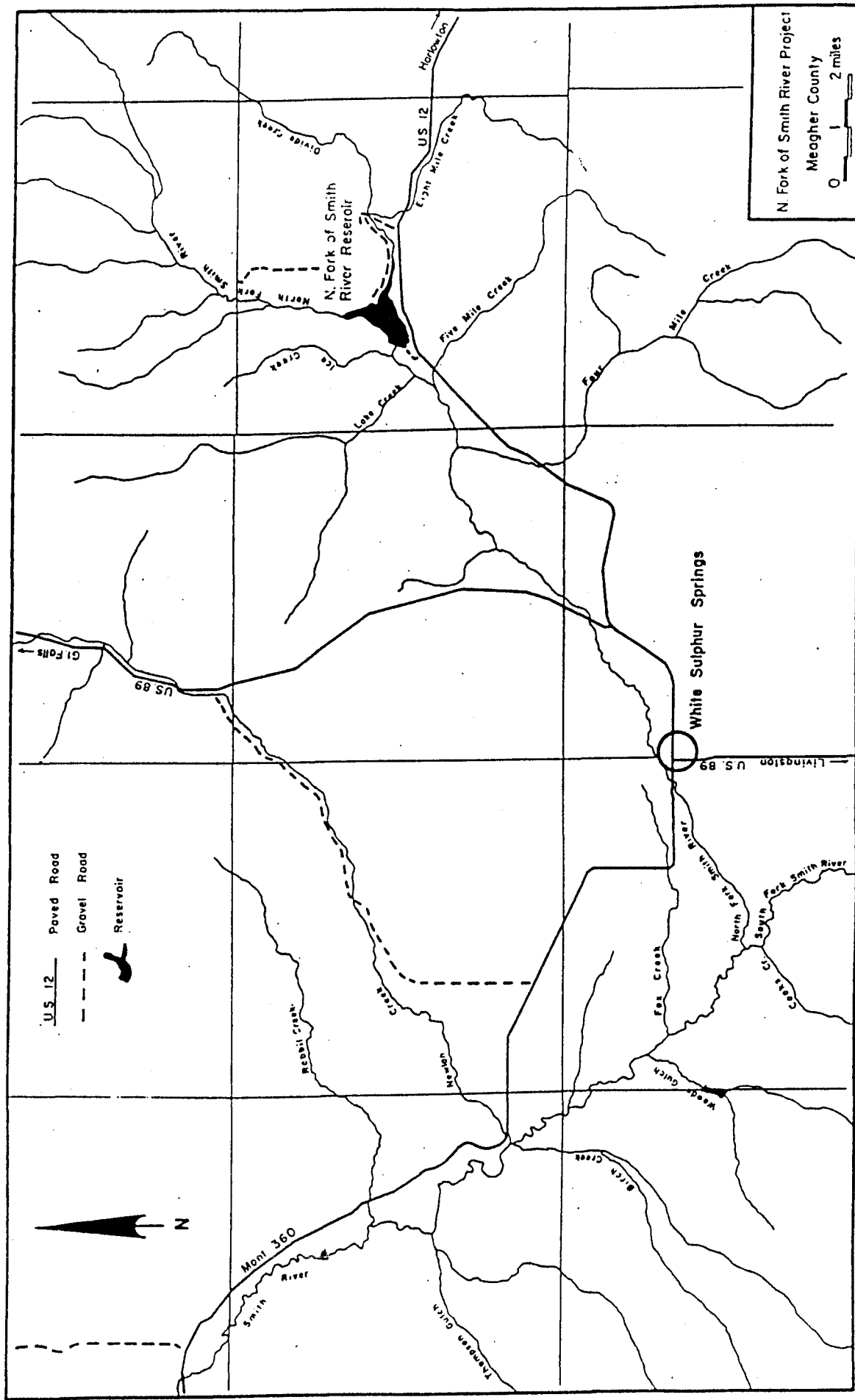
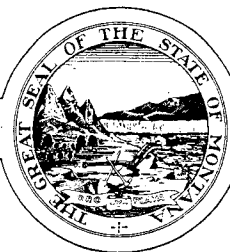


Figure 3. NORTH FORK SMITH RIVER DAM PROJECT

DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION



JUDY MARTZ
GOVERNOR

DIRECTOR'S OFFICE (406) 444-2074
TELEFAX NUMBER (406) 444-2684

STATE OF MONTANA

WATER RESOURCES DIVISION (406) 444-6601
TELEFAX NUMBERS (406) 444-0533 / (406) 444-5918
<http://www.dnrc.state.mt.us/wrd/home.htm>

1424 9TH AVENUE
PO BOX 201601
HELENA, MONTANA 59620-1601

Cover Letter

November 7, 2003

Governor's Office, Barbara Ranf, Rm. 204, State Capitol, P.O. Box 200801, Helena, MT 59620-0801
Environmental Quality Council, Capitol Building, Room 106, P.O. Box 201704, Helena, MT 59620
Dept. of Environmental Quality, Metcalf Building, P.O. Box 200901, Helena, MT 59620-0901
Director's Office
Water Protection Bureau
Dept. of Natural Resources and Conservation, US F&G Bldg. 1625 11th Ave. Helena, MT 59620
Director's Office
Information Services Section
Water Resources Division, 1424 9th Ave., P.O. Box 201601, Helena, MT 59620-1601
Scott Irvin, Water Resources Div., Lewistown Office, 613 NE Main, Suite E, Lewistown, MT 59457
Montana Department of Fish, Wildlife & Parks, 1420 E. 6th Ave. Helena, MT 59620
Director's Office
Fisheries Division
Steve Leathe, FWP Region 4 Office, 4600 Giant Springs Rd. Great Falls, MT 59405
MT Historical Society, State Historic Preservation Office, P.O. Box 201202 Helena, MT 59620-1202
Montana Environmental Information Center, P.O. Box 1184, Helena, MT 59624
Montana Audubon Council, P.O. Box 595, Helena, MT 59624
Meagher County Commissioners, 115 W. Main, White Sulphur Springs, MT 59645
Wildlife Federation, P.O. Box 1175, Helena, MT 59624
Trout Unlimited, P.O. Box 7186, Missoula, MT 59807
Northern Plains Resource Council, 2401 Montana Ave. Suite 200, Billings, MT 59101-2336
Trent Townsend, N. Fork Smith Water Users, 211 E. Hampton, PO Box 504, White Sulphur Springs, MT 59645
U.S. Army Corps of Engineers, 10 W 15th St. Suite 2200, Helena, MT 59626
U.S. Fish and Wildlife Service, MT Field Office, 100 N. Park Ave. Helena, MT 59601

Ladies and Gentlemen:

The enclosed Finding of No Significant Impact/Decision Notice has been prepared for the North Fork of the Smith River Dam Rehabilitation Project. Please contact James P. Domino at (406) 444-6622 (e-mail jdomino@state.mt.us) should you have any questions about the Finding of No Significant Impact/Decision Notice or the Final EA. Copies of the Final EA are available upon request. The Final EA can also be viewed on the DNRC website at www.dnrc.state.mt.us. Thank you.

Sincerely,

A handwritten signature in cursive script, appearing to read "Jack Stults".

Jack Stults
Water Resources Division Administrator

STATE WATER PROJECTS
BUREAU
(406) 444-6646

WATER MANAGEMENT
BUREAU
(406) 444-6637

WATER OPERATIONS
BUREAU
(406) 444-0860

WATER RIGHTS
BUREAU
(406) 444-6610

FINDING OF NO SIGNIFICANT IMPACT/
NOTICE OF DECISION

November 7, 2003

Dear Reader:

The Montana DNRC released a draft Environmental Assessment (EA) on September 26, 2003, on the North Fork of the Smith River Dam Rehabilitation Project. The North Fork of the Smith River Dam is located in Meagher County, Montana, in Township 10N, Range 9E, sections 17 and 20. The dam is owned by the DNRC and operated by the North Fork of the Smith River Water Users Association. The proposed action calls for the development and installation of a new spillway with dimensions similar to the existing structure. The new spillway will be designed to meet or exceed all current safety standards. The existing outlet conduit would be lengthened and the outlet terminal structure would be removed and replaced with a new structure. All replacement concrete will meet current standards to improve the durability over the original construction. Additional seepage drains would also be installed at the downstream toe. Approximately 30,000 cubic yards of material would be excavated during construction, with approximately 20 acres of disturbed area. The overriding goal of this project is to improve the efficiency, safety and functionality of the North Fork of the Smith River Dam for its continued use for agricultural irrigation and recreation. Public benefits from this project include the continued use of reservoir water for agricultural irrigation and water-based recreation. Greatly enhanced public safety is an additional and very significant benefit.

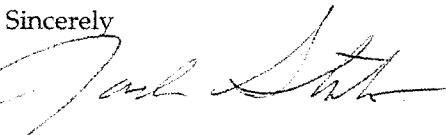
The public comment period closed on October 27, 2003 with no comments received. The Montana Department of Environmental Quality, Montana Department of Fish, Wildlife and Parks, State Historic Preservation Officer and the Army Corps of Engineers were consulted as part of the EA process and for permitting requirements. No opposition to the project was expressed by these agencies.

Based on the EA's disclosure and analysis of potential impacts, the DNRC concludes that the proposed action will not result in any significant impacts. The DNRC will adopt the draft EA as the final EA and proceed with the preferred alternative. Copies of the Final EA are available upon request. The Final EA can be viewed on the DNRC website at www.dnrc.mt.us in the Environmental Documents section. Please direct any questions to:

James P. Domino
State Water Projects Bureau
DNRC, 1424 9th Avenue
P.O. Box 201601
Helena, MT 59620-1601
(406) 444-6622 e-mail: jdomino@state.mt.us

Thank you for your interest.

Sincerely



Jack Stults
Water Resources Division Administrator

DEPARTMENT OF NATURAL
RESOURCES AND CONSERVATION



JUDY MARTZ
GOVERNOR

DIRECTOR'S OFFICE (406) 444-2074
TELEFAX NUMBER (406) 444-2684

STATE OF MONTANA

WATER RESOURCES DIVISION (406) 444-6601
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<http://www.dnrc.state.mt.us/wrd/home.htm>

1424 9TH AVENUE
PO BOX 201601
HELENA, MONTANA 59620-1601

Cover Letter

October 20, 2003

Governor's Office, Barbara Ranf, Rm. 204, State Capitol, P.O. Box 200801, Helena, MT 59620-0801
Environmental Quality Council, Capitol Building, Room 106, P.O. Box 201704, Helena, MT 59620
Dept. of Environmental Quality, Metcalf Building, P.O. Box 200901, Helena, MT 59620-0901
Director's Office
Dept. of Natural Resources and Conservation, US F&G Bldg. 1625 11th Ave. Helena, MT 59620
Director's Office
Information Services Section
Water Resources Division, 1424 9th Ave, P.O. Box 201601, Helena, MT 59620-1601
Terry McLaughlin, Water Resources Div. Helena Regional Office, 21 N. Last Chance Gulch,
P.O. Box 201601, Helena, MT 59620-1601
Montana Department of Fish, Wildlife & Parks, 1420 E. 6th Ave. Helena, MT 59620
Director's Office
MT Historical Society, State Historic Preservation Office, P.O. Box 201202 Helena, MT 59620-1202
Montana Environmental Information Center, P.O. Box 1184, Helena, MT 59624
Montana Audubon Council, P.O. Box 595, Helena, MT 59624
Powell County Commissioners, 409 Missouri, Deer Lodge, MT 59722
Wildlife Federation, P.O. Box 1175, Helena, MT 59624
Trout Unlimited, P.O. Box 7186, Missoula, MT 59807
Northern Plains Resource Council, 2401 Montana Ave. Suite 200, Billings, MT 59101-2336
Steve Graveley, Nevada Creek Water Users Association, P.O. Box 68, Helmville, MT 59843
John Fitzpatrick, 218 8th Ave. Helena, MT 59601
U.S. Army Corps of Engineers, 301 S. Park Ave. Drawer 10014, Helena, MT 59626-0014
U.S. Fish and Wildlife Service, MT Field Office, 100 N. Park Ave. Helena, MT 59601

Ladies and Gentlemen:

The enclosed Environmental Assessment (EA) has been prepared for the Fitzpatrick Ranch Building Sale and is submitted for your consideration. Please feel free to contact Tim Kuehn at (406) 444-6655, e-mail tkuehn@state.mt.us should you have any questions or comments. Comments will be accepted until 5:00 p.m., November 21, 2003. Address comments to: Tim Kuehn, DNRC State Water Projects Bureau, 1424 9th Avenue, P.O. Box 201601, Helena, MT 59620-1601.

Copies of the EA are available upon request. The EA can also be viewed on the DNRC website at www.dnrc.state.mt.us. Thank you.

Sincerely,

Handwritten signature of James P. Domino in cursive.

James P. Domino
Environmental Specialist
State Water Projects Bureau

DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION
WATER RESOURCES DIVISION
State Water Projects Bureau

Draft
ENVIRONMENTAL ASSESSMENT

FITZPATRICK RANCH BUILDING SALE

BACKGROUND

This Environmental Assessment (EA) has been prepared to comply with the Montana Environmental Policy Act (MEPA).

1. General Description

Proposed Action

The proposed action calls for the sale and/or salvage of the ranch main dwelling via a public auction. The auction would be held on-site and main dwelling would either be moved to another location by the successful bidder or salvaged on-site. Other structures could be included in the proposed sale if interest exists. The sale is tentatively scheduled for December, 2003 or January, 2004.

Additional information:

Appendix B contains a DNRC Historic Cultural Resource Site Form Update and location map.

2. Location of Project

The site is located in Powell County Montana on DNRC property adjacent to the Nevada Lake Reservoir, SE-SE-SW1/4 of Section 18, T12N R09W and the N1/2-N1/2-NE-NE-NW1/4 of Section 19, T12N R09W.

3. Purpose and Need for the Project

The overriding goal of this project is to absolve the State of the liability and administrative tasks associated with these structures.

II. ENVIRONMENTAL REVIEW

Whenever possible, effects to the environment will be avoided. Where effects cannot be avoided, they will be minimized to the extent possible.

Environmental Impact Checklist

environmental checklist has been included as Appendix A.

2. Environmental Consequences

Air

No impacts are anticipated to air quality

Water

No impacts are anticipated to any water resources or water quality.

Vegetation

Some vegetation may be disturbed as a result of the removal of the main dwelling and other structures, with the existing vegetation consisting of sage, grasses and cottonwood trees. All disturbed areas would be re-vegetated by re-seeding. A weed control program will be implemented until vegetation is re-established.

Fish and Wildlife

No impacts to wildlife are anticipated. A file search was conducted by the MT Natural Heritage Program. No impacts are anticipated to any threatened, endangered or species of special concern.

Noise

Noise levels will increase temporarily during the auction and building removal process. Because of the rural location of the site, this noise would not impact the adjacent landowners.

Impacts from noise to wildlife are expected to be negligible.

Land Use

There will be no change in land use.

Taxes

The tax base will not be affected.

Recreation

Will not be affected.

Cultural Resources

The auction and removal of the main dwelling, and possibly other buildings will result in the alteration of the site from its original form, thus adversely affecting the cultural and historic character of the area. Although adverse, this impact is not significant due to the site's extensive documentation. This documentation mitigates the adverse impact to the site's cultural resources. No additional archeological sites are known to exist in the proposed project area. The Montana Historical Society has been notified.

III. ALTERNATIVES

1. No Action Alternative

This option involves leaving the property and structures as is.

2. Sale of entire 20 Acre Parcel with Buildings

This option involves selling the entire 20 acres with the ranch buildings to a private interest.

3. Lease Option (lease buildings to private interest for occupancy and use)

This option involves leasing the buildings and property for use by a private interest.

4. Sale and Removal / Salvage Option

This option calls for the sale of the ranch main dwelling via a public auction. The auction would be held on-site and main dwelling would be moved to another location by the successful bidder. Other structures could be included in the proposed sale if interest exists.

Preferred Option

The preferred option is option 4 (sale and removal / salvage).

Under Alternative 1; the no action option, the main dwelling and other structures would continue to be liability to the state. The structural integrity of the buildings would continue to deteriorate and the DNRC does not have the funding to adequately maintain these buildings. Alternative 2 is not a feasible or practical option as existing Powell County subdivision codes prevent the sale of the entire 20-acre parcel with the buildings. The DNRC submitted a Variance Request on County Development Regulations in July 1998 so the property could be sold to a private interest. Powell County denied this request in August 1998. Alternative 3, the lease option, goes against the DNRC policy of no longer leasing such structures for private use.

Public Benefits of Preferred Option

Public benefits from this project include the sale and removal of the main dwelling (and possibly other structures), thus eliminating State liability and administrative tasks.

IV. CONSULTATION AND COORDINATION

1. Agencies Consulted

The MT State Historic Preservation Office (SHPO) has been contacted regarding the proposed sale.

Agency Name

Type of Responsibility

State Historical Preservation Office

advisory

2. Permits Required

The following permits will be needed for the project:

Permit	Issuing Agency	Status
N/A	N/A	N/A

3. Public Involvement

Public comments will be solicited through the distribution of the EA to those listed on the cover page.

V. CONCLUSION

Based on the criteria evaluated in this EA, no significant impacts, either individually or cumulative will result from the proposed sale. The liability of having such structures on State Water Projects Bureau property is the main reason for the proposed sale. The proof of liability unfortunately exists only when an injury occurs and legal action is taken. The DNRC feels it is not prudent to wait until such legal action takes place. Other options, such as leasing or selling the entire 20 acres with the ranch buildings have been investigated. It is the policy of the DNRC to no longer lease such structures for private use. The DNRC State Water Projects Bureau does not have the funding to adequately maintain these buildings. The current subdivision codes of Powell County would not allow for the sale of this property. We believe the site has been adequately documented and recorded, thus mitigating the adverse impact to the site's cultural resources, and the sale and removal or salvage option (alternative 4) is the best remaining course of action.

PART II. ENVIRONMENTAL CHECKLIST REVIEW

Appendix A

1. PHYSICAL ENVIRONMENT**IMPACTS**

UNKNOWN*	NO IMPACTS	MINOR IMPACTS:*	POTENTIALLY SIGNIFICANT IMPACTS:*	CAN IMPACTS BE MITIGATED *	COMMENT INDEX
1. LAND RESOURCES					
Will the proposed action result in:					
a. Soil instability or changes in geologic substructure?	X				
b. Disruption, displacement, erosion, compaction, moisture loss, or over-covering of soil which would reduce productivity or fertility?	X				
c. Destruction, covering or modification of any unique geologic or physical features?	X				
d. Changes in siltation, deposition or erosion patterns that may modify the channel of a river or stream or the bed or shore of a lake?	X				
e. Exposure of people or property to earthquakes, landslides, ground failure, or other natural hazard?	X				
f. Other: _____					

**PHYSICAL
ENVIRONMENT
(Continued)**

IMPACTS

2. AIR

Will the proposed action result in:

a. Emission of air pollutants or deterioration of ambient air quality?

b. Creation of objectionable odors?

c. Alteration of air movement, moisture, or temperature patterns or any change in climate, either locally or regionally?

d. Adverse effects on vegetation, including crops, due to increased emissions of pollutants?

e. Other: _____

UNKNOWN*	NO IMPACTS	MINOR IMPACTS:*	POTENTIALLY SIGNIFICANT IMPACTS:*	CAN IMPACTS BE MITIGATED *	COMMENT INDEX
	X				
	X				
	X				
	X				

**PHYSICAL
ENVIRONMENT**

IMPACTS

UNKNOWN *	NO IMPACTS	MINOR IMPACTS:*	POTENTIALLY SIGNIFICANT IMPACTS:*	CAN IMPACTS BE MITIGATED *	COMMENT INDEX
3. <u>WATER</u>					
Will the proposed action result in:					
a. Discharge into surface water or any alteration of surface water quality including but not limited to temperature, dissolved oxygen or turbidity?	X				
b. Changes in drainage patterns, rate or amount of surface runoff?	X				
c. Alteration of the course or magnitude of floodwater or other flows?	X				
d. Changes in the amount of surface water in any water body or creation of a new water body?	X				
e. Exposure of people or property to water related hazards such as flooding?	X				
f. Changes in the quality of groundwater?	X				
g. Changes in the quantity of groundwater?	X				
h. Increase contamination of surface / groundwater?	X				
i. Violation of the Montana Non-Degradation Statute?	X				
j. Effects on any existing water right or reservation?	X				
k. Effects on other water users as a result alterations in surface or groundwater quality?	X				
l. Effects on other users as a result of any alteration in surface or groundwater quantity?	X				
m. Other: _____					

**PHYSICAL
ENVIRONMENT
(Continued)**

IMPACTS

UNKNOWN*	NO IMPACTS	MINOR IMPACTS:*	POTENTIALLY SIGNIFICANT IMPACTS:*	CAN IMPACTS BE MITIGATED *	COMMENT INDEX
<p>4. <u>VEGETATION</u></p> <p>Will the proposed action result in:</p> <p>a. Changes in the diversity, productivity or abundance of plant species (including trees, shrubs, grass, crops, and aquatic plants)?</p> <p>b. Alteration of a plant community?</p> <p>c. Adverse effects on any unique, rare, threatened, or endangered plant species?</p> <p>d. Reduction in acreage or productivity of any agricultural land?</p> <p>e. Establishment or spread of noxious weeds?</p> <p>f. Other: _____</p>		X		Yes	4a.

4A. Some vegetation may be disturbed during the building removal process, mostly consisting of sage and grasses. One cottonwood tree may also have to be removed. Any disturbed areas would be reseeded and reclaimed. Long-term impacts are negligible and non-significant.

**PHYSICAL
ENVIRONMENT**
(Continued)

IMPACTS

UNKNOWN*	NO IMPACTS	MINOR IMPACTS:*	POTENTIALLY SIGNIFICANT IMPACTS:*	CAN IMPACTS BE MITIGATED *	COMMENT INDEX
<p>5. <u>FISH/WILDLIFE</u></p> <p>Will the proposed action result in:</p> <p>a. Deterioration of critical fish or wildlife habitat?</p> <p>b. Changes in the diversity or abundance of game animals or bird species?</p> <p>c. Changes in the diversity or abundance of nongame species?</p> <p>d. Introduction of new species into an area?</p> <p>e. Creation of a barrier to the migration or movement of animals?</p> <p>f. Adverse effects on any unique, rare, threatened, or endangered species?</p> <p>g. Increase in conditions that stress wildlife populations or limit abundance (including harassment, legal or illegal harvest or other human activity)?</p> <p>h. Other:</p> <p>_____</p>	<p>X</p> <p>X</p> <p>X</p> <p>X</p> <p>X</p> <p>X</p> <p>X</p>				

2. HUMAN ENVIRONMENT

IMPACTS

	UNKNOWN*	NO IMPACTS	MINOR IMPACTS:*	POTENTIALLY SIGNIFICANT IMPACTS:*	CAN IMPACTS BE MITIGATED *	COMMENT INDEX
<p>6. <u>NOISE/ELECTRICAL EFFECTS</u></p> <p>Will the proposed action result in:</p> <p>a. Increases in existing noise levels?</p> <p>b. Exposure of people to severe or nuisance noise levels?</p> <p>c. Creation of electrostatic or electromagnetic effects that could be detrimental to human health or property?</p> <p>d. Interference with radio or television reception and operation?</p> <p>e. Other: _____</p>			X			6a.

6a. Noise levels would temporarily increase during the auction and building removal process. Adjacent landowners would not be affected due to the rural character of the area. This temporary increase in noise levels is non-significant and would end upon completion of the proposed action.

**HUMAN
ENVIRONMENT**
(Continued)

IMPACTS

UNKNOWN*	NO IMPACTS	MINOR IMPACTS:*	POTENTIALLY SIGNIFICANT IMPACTS:*	CAN IMPACTS BE MITIGATED *	COMMENT INDEX
<p>7. LAND USE</p> <p>Will the proposed action result in:</p> <p>a. Alteration of or interference with the productivity or profitability of the existing land use of an area?</p> <p>b. Conflict with a designated natural area or area of unusual scientific or educational importance?</p> <p>c. Conflict with any existing land use whose presence would constrain or potentially prohibit the proposed action?</p> <p>d. Adverse effects on or relocation of residences?</p> <p>e. Increase regulatory restrictions on private property rights?</p> <p>f. Other: _____</p>	<p>X</p> <p>X</p> <p>X</p> <p>X</p> <p>X</p>				

IMPACTS

	UNKNOWN*	NO IMPACTS	MINOR IMPACTS:*	POTENTIALLY SIGNIFICANT IMPACTS:*	CAN IMPACTS BE MITIGATED *	COMMENT INDEX
<p>8. <u>RISK/HEALTH HAZARDS</u></p> <p>Will the proposed action result in:</p> <p>a. Risk of an explosion or release of hazardous substances (including but not limited to oil, pesticides, chemicals, or radiation) in the event of an accident or other forms of disruption?</p> <p>b. Affect an existing emergency response or emergency evacuation plan or create a need for a new plan?</p> <p>c. Creation of any human health hazard or potential hazard?</p> <p>d. Other: _____</p>		X				
		X				
			X			8c.

8c. Failure to remove these structures would result in continuing liability to the State and present a potential public health hazard due to the continued deterioration of the structures.

**HUMAN
ENVIRONMENT**
(Continued)

IMPACTS

	UNKNOWN*	NO IMPACTS	MINOR IMPACTS:*	POTENTIALLY SIGNIFICANT IMPACTS:*	CAN IMPACTS BE MITIGATED *	COMMENT INDEX
<p>9. <u>COMMUNITY IMPACTS</u></p> <p>Will the proposed action result in:</p> <p>a. Alteration of the location, distribution, density, or growth rate of the human population of an area?</p> <p>b. Alteration of the social structure of a community?</p> <p>c. Alteration of the level or distribution of employment or community or personal income?</p> <p>d. Changes in industrial or commercial activity?</p> <p>e. Increased traffic hazards or effects on existing transportation facilities or patterns of movement of people and goods?</p> <p>f. Other: _____</p>		<p>X</p> <p>X</p> <p>X</p> <p>X</p> <p>X</p>				

**HUMAN
ENVIRONMENT**
(Continued)

IMPACTS

**10. PUBLIC
SERVICES/
TAXES/UTILITIES**

Will the proposed
action:

a. Have an effect upon
or result in a need for
new or altered
governmental services
in any of the following
areas: fire or police
protection, schools,
parks/recreational
facilities, roads or other
public maintenance,
water supply, sewer or
septic systems, solid
waste disposal, health,
or other governmental
services? If any,
specify:

b. Have an effect upon
the local or state tax
base and revenues?

c. Result in a need for
new facilities or
substantial alterations
of any of the following
utilities: electric power,
natural gas, other fuel
supply or distribution
systems, or
communications?

d. Result in increased
use of any energy
source?

e. Other: _____

UNKNOWN*	NO IMPACTS	MINOR IMPACTS:*	POTENTIALLY SIGNIFICANT IMPACTS:*	CAN IMPACTS BE MITIGATED *	COMMENT INDEX
	X				
	X				
	X				
	X				

**HUMAN
ENVIRONMENT
(Continued)**

IMPACTS

UNKNOWN*	NO IMPACTS	MINOR IMPACTS:*	POTENTIALLY SIGNIFICANT IMPACTS:*	CAN IMPACTS BE MITIGATED *	COMMENT INDEX
<p>11. <u>AESTHETICS/ RECREATION</u></p> <p>Will the proposed action result in:</p> <p>a. Alteration of any scenic vista or creation of an aesthetically offensive site or effect that is open to public view?</p> <p>b. Alteration of the aesthetic character of a community or neighborhood?</p> <p>c. Alteration of the quality or quantity of recreational opportunities and settings?</p> <p>d. Other: _____</p>	<p>X</p> <p>X</p> <p>X</p>				

**HUMAN
ENVIRONMENT
(Continued)**

IMPACTS

	UNKNOWN*	NO IMPACTS	MINOR IMPACTS:*	POTENTIALLY SIGNIFICANT IMPACTS:*	CAN IMPACTS BE MITIGATED *	COMMENT INDEX
12. <u>CULTURAL/ HISTORICAL RESOURCES</u>						
Will the proposed action result in:						
a. Destruction or alteration of any site, structure or object of prehistoric, historic, or paleontological importance?			X		Yes	12a.
b. Physical change that would affect unique cultural values?			X		Yes	12b.
c. Effects on existing religious or sacred uses of a site or area?			X		Yes	12c.
d. Other: _____						

Note: 12a, b, and c.) The auction and removal of the main dwelling, and possibly other buildings will result in the alteration of the site from its original form, thus adversely affecting the cultural and historic character of the area. Although adverse, this impact is not significant due to the site's extensive documentation. The extensive documentation of the site mitigates the adverse impact to the site's cultural resources. No additional archeological sites are known to exist in the proposed project area. The Montana Historical Society has been notified.

**3. SIGNIFICANCE
CRITERIA**

IMPACTS

	UNKNOWN*	NO IMPACTS	MINOR IMPACTS:*	POTENTIALLY SIGNIFICANT IMPACTS:*	CAN IMPACTS BE MITIGATED *	COMMENT INDEX
<p>13. SUMMARY EVALUATION OF SIGNIFICANCE</p> <p>Will the proposed action, considered as a whole:</p> <p>a. Have impacts that are individually limited, but cumulatively considerable? (A project or program may result in impacts on two or more separate resources which create a significant effect when considered together or in total.)</p> <p>b. Involve potential risks or adverse effects which are uncertain but extremely hazardous if they were to occur?</p> <p>c. Potentially conflict with the substantive requirements of any local, state, or federal law, regulation, standard or formal plan?</p> <p>d. Establish a precedent or likelihood that future actions with significant environmental impacts will be proposed?</p> <p>e. Generate substantial debate or controversy about the nature of the impacts that would be created?</p> <p>f. Other: _____</p>		<p>X</p> <p>X</p> <p>X</p> <p>X</p> <p>X</p>				

Appendix B

DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION HISTORIC CULTURAL RESOURCE SITE FORM UPDATE

I. IDENTIFICATION: Smithsonian No.: 24PW0357

Field No.: N/A

DNRC Project No: N/A

Project Name: N/A

Site Name: Fitzpatrick Ranch Historic District

II. LOCATION: State: MT County: Powell

Land Status: State (General State Land administered by the DNRC)

7.5' USGS Map: Nevada Lake, MT (1968)

Legal Description: SE-SE-SW1/4 of Section 18, T12N R09W and the N1/2-N1/2-NE-NE-NW1/4 of Section 19, T12N R09W

UTM: Zone 12, 3 64 209 mE;

51 83 180 mN

III. ACCESS: From Avon, MT follow Highway 141 northwest for ca. 17 miles to the graveled approach at the south end of Nevada Lake. Follow the access road down the hill to the site area.

IV. TYPE: Historic post office/stage stop/ranch

V. APPARENT PERIOD OF SITE USAGE OR CONSTRUCTION: 1872-1975

Dating Potential: Excellent

VI. Site Dimensions: Site dimensions, based on the distribution of cultural features in the site, are arbitrarily designated as an area with maximum dimensions of 200 m N/S x 160 m E/W.

Methods Used: Visual inspection, a literature review, and a Trimble Geo-Explorer III GPS Unit.

Surface Visibility: 5%

Depth of Cultural Remains: Undetermined

Associated Sites: Unknown

VII. DESCRIPTION (integrity, previous disturbance, description of materials observed): The site form is an update to the original site form prepared for the Fitzpatrick Ranch House Historic District (a.k.a Isabel Territorial Post Office, a.k.a Fitzpatrick Ranch Station) and is listed in the National Register of Historic Places. The site has been documented in detail by Westenberg (n.d.), Mitchell (n.d.), and Walker-Kuntz and Litwinionek (2000) so the reader is referred to those sources to obtain a history of the site. This site form is intended to provide a scaled plan map, to provide additional photodocumentation, and to obtain a Smithsonian trinomial, for the site. Today 10 cultural features are present within the defined site boundaries. Feature 1 is identified as structure #6 (main dwelling) by Westenberg (n.d.) and as Building F (main dwelling) by Mitchell (n.d.). Feature 2 is a clapboard sided outhouse which measures 4' square. This structure is not identified by Westenberg (n.d.) or Mitchell (n.d.). Feature 3 is identified as structure #5 (small frame dwelling) by Westenberg (n.d.) and as Building E by Mitchell (n.d.). Feature 4 is identified as structure #7 (should be #8) (machine shed and storage) by Westenberg (n.d.) and is not identified by Mitchell (n.d.). Feature 5 is identified as structure #9 (greenhouse) by Westenberg (n.d.) and is not identified by Mitchell (n.d.). Feature 6 is identified as structure #3 (small log barn) by Westenberg (n.d.) and as Building C (small log shop) by Mitchell (n.d.). Feature 7 is identified as structure #2 (log dairy barn) by Westenberg (n.d.) and as Building B by Mitchell (n.d.). Feature 8 is identified as structure #4 (calf barn and poultry building) by Westenberg (n.d.) and as Building D by Mitchell (n.d.). Feature 9 is identified as structure #1 (log dwelling) by Westenberg (n.d.) and as Building A by Mitchell (n.d.). Feature 10 is identified as structure #8 (should be #7) by Westenberg (n.d.) and is not identified by Mitchell (n.d.).

VIII. WATER (leave blank if more than 1 mile from the site):

Permanent (name): Buffalo Gulch

Elevation: 4630 ft/ 1411 m ASL

Distance and Direction from Site: Passes through the site

Permanent (name): Nevada Creek

Elevation: 4630 ft/ 1411 m ASL

Distance and Direction from Site: 75 m SW

IX. TOPOGRAPHY: The site is in the Nevada Creek drainage at a point where the drainage passes through a constricted part of the narrow valley. The terrain containing and surrounding the site is mountainous.

Slope and Direction: Less than 5% to the SW

Aspect: SW

Site Elevation: 4630 ft/ 1411 m ASL

X. SOILS: The geology of the project area is described as a combination of fine-grained volcanic rocks, limestone and dolomite with moderately hard green-gray shales, and moderately hard sandstones with soft gray and black shales. Nevada Creek at the Fitzpatrick Ranch site flows through a narrow valley formed by rapid downcutting of the stream through soft tertiary lake bed sediments and ancient landslide debris which encroached onto the valley bottom. Soils in the site locale are those of the Arbor series and include Turrah silty clay loam, Danvers Clay loam and Bignell gravelly clay loam (Veseth and Montagne 1980).

XI. VEGETATION (onsite): Mesic grasses, knapweed, juniper, ponderosa pine, willow and chokecherry.
Surrounding: Same as previous description.

XII. MANAGEMENT DATA:

A. X Recorded	Collected	X Mapped	Shovel/Auger Probed	Excavated
Stabilized	Other (explain):			

Detail the level of testing or research carried out: A visual examination, photodocumentation, and a GPS unit were utilized to supplement the record already made for this site. To date, subsurface examination in the site has not been conducted.

Artifact Repository: N/A

B. Project Impacts: Fluctuations of the water level of Nevada Lake, and neglect, will continue to impact the structures in the site.

Other Impacts: Some of the buildings in the site may be sold and removed.

C. National Register Eligibility: Listed on the National Register of Historic Places presumably under criteria A, B and C.

Discussion: See discussions already developed in Westenberg (n.d.), Mitchell (n.d.), and Walker-Kuntz and Litwinionek (2000).

C. Known Collections, Publications, or Reports Pertaining to this Site:

Mitchell, Cody

n.d. Fitzpatrick Ranch House Historic Report. Unpublished report prepared by Cody Mitchell (DNRC-Water Resources Division) for the DNRC (Helena, MT). Report is not dated.

Walker-Kuntz, Sunday and Luc Litwinionek

2000 Class I Inventory of Cultural Resources for Nevada Creek Dam, Powell County and Bair Reservoir Dam, Meagher County, Montana. Consultant's report (Ethnoscience, Inc., Billings) prepared for the DNRC-Water Resources Division (Helena, MT). Report dated June 2000.

Westenberg, John

n.d. National Register of Historic Places Nomination Form. Form prepared by John Westenberg (Land and Water Consulting, Helena). Form is not dated.

D. References Cited:

Mitchell, Cody

n.d. Fitzpatrick Ranch House Historic Report. Unpublished report prepared by Cody Mitchell (DNRC-Water Resources Division) for the DNRC (Helena, MT). Report is not dated.

Veseth, R. and C. Montagne

1980 Geologic Parent Materials of Montana Soils. Montana State University and USDA-Soil Conservation Service *Bulletin 721*. November, 1980.

Walker-Kuntz, Sunday and Luc Litwinionek

2000 Class I Inventory of Cultural Resources for Nevada Creek Dam, Powell County and Bair Reservoir Dam, Meagher County, Montana. Consultant's report (Ethnoscience, Inc., Billings) prepared for the DNRC-Water Resources Division (Helena, MT). Report dated June 2000.

Westenberg, John

n.d. National Register of Historic Places Nomination Form. Form prepared by John Westenberg (Land and Water Consulting, Helena). Form is not dated.

E. Photographs:

I.D. Code Roll No. Frame No. BW/C Dir. Description

Digital photos taken only

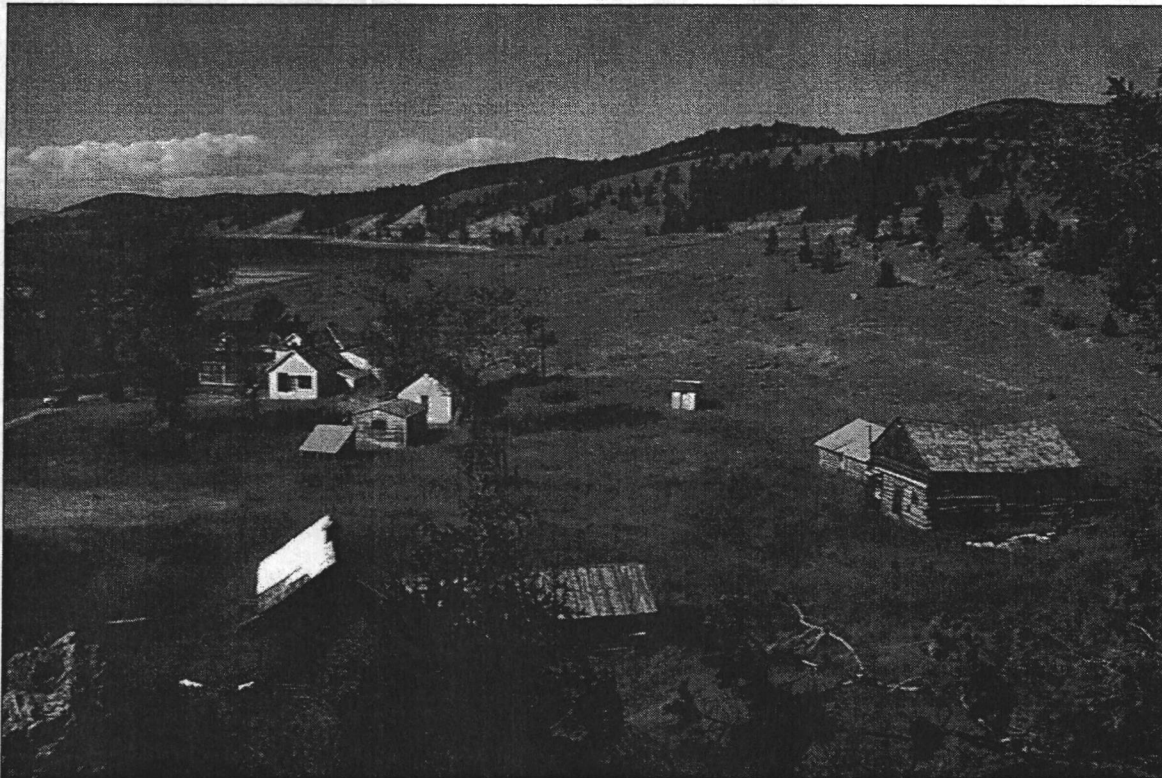
F. Recorder: P. Rennie and T. Keuhn

Date: 8-24-2001

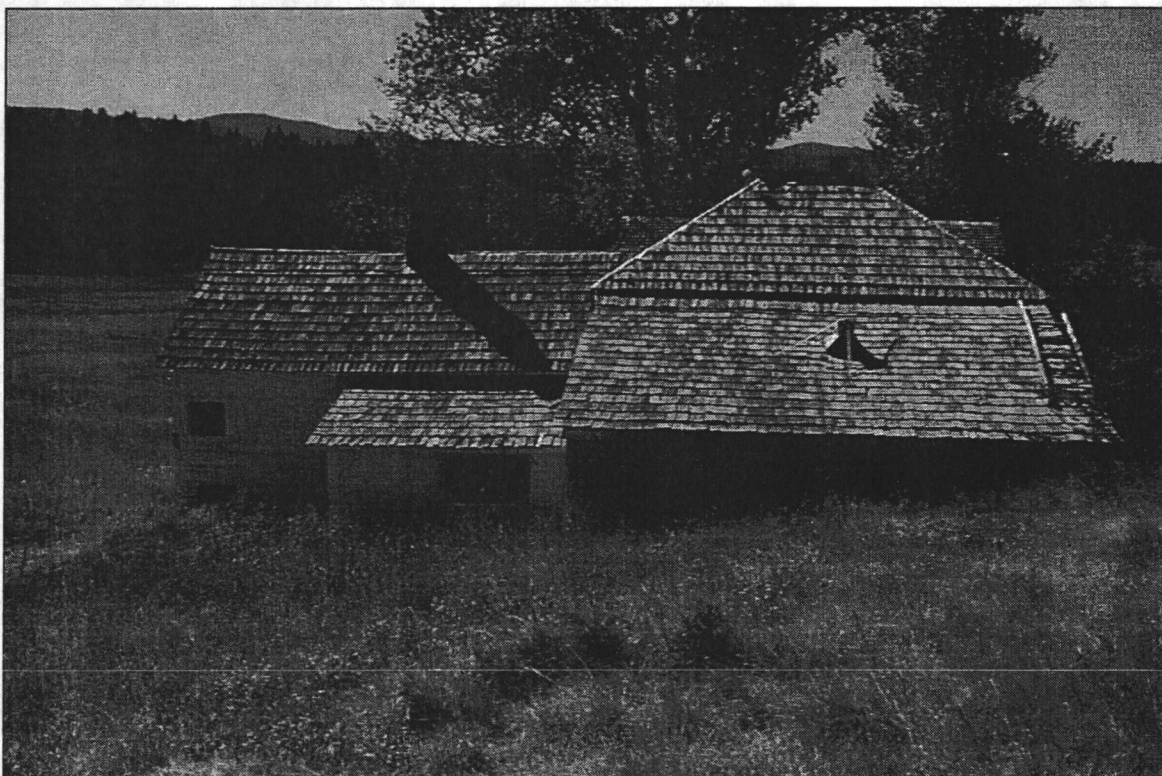
G. Map: Attach Site Sketch map (if applicable) and Photocopy of 7.5' Quad



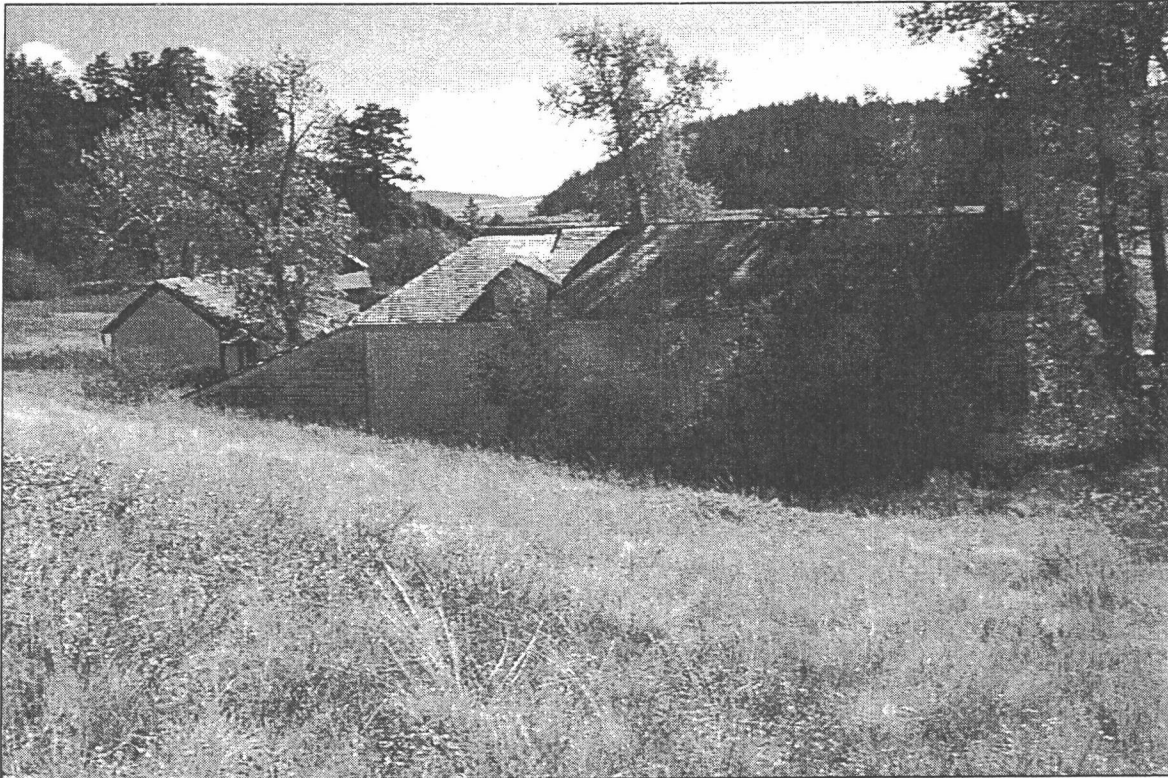
Overview of site 24PW0357 looking SE.



Overview of site 24PW0357 looking NW.



View looking SW at Feature 1 in site 24PW0357.



View looking SE at Feature 1 in site 24PW0357.



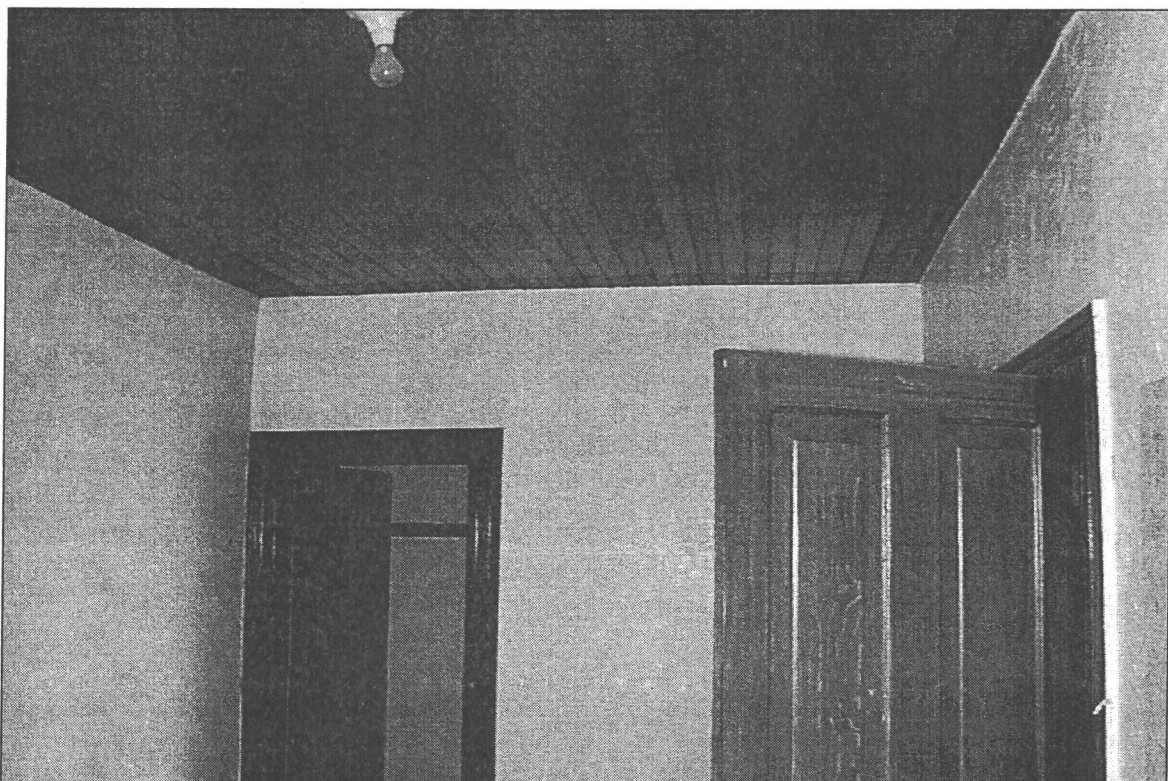
View looking NW at Feature 1 in site 24PW0357.



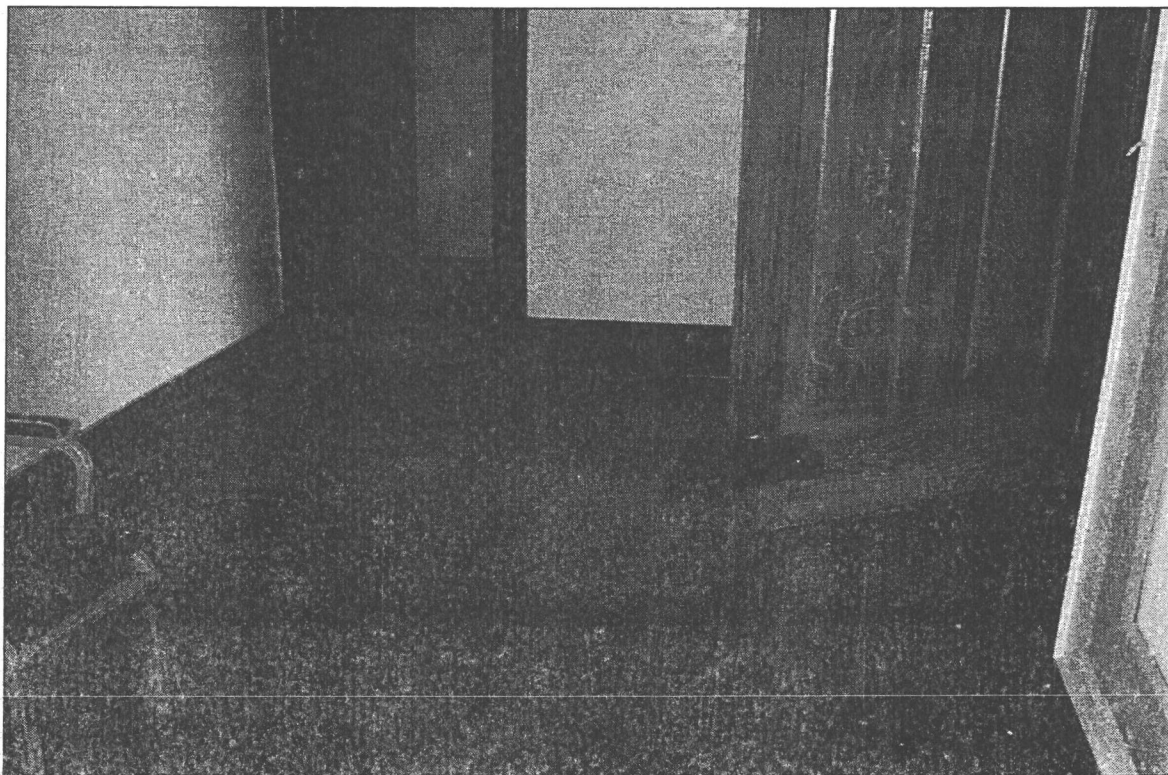
View looking NE at Feature 1 in site 24PW0357.



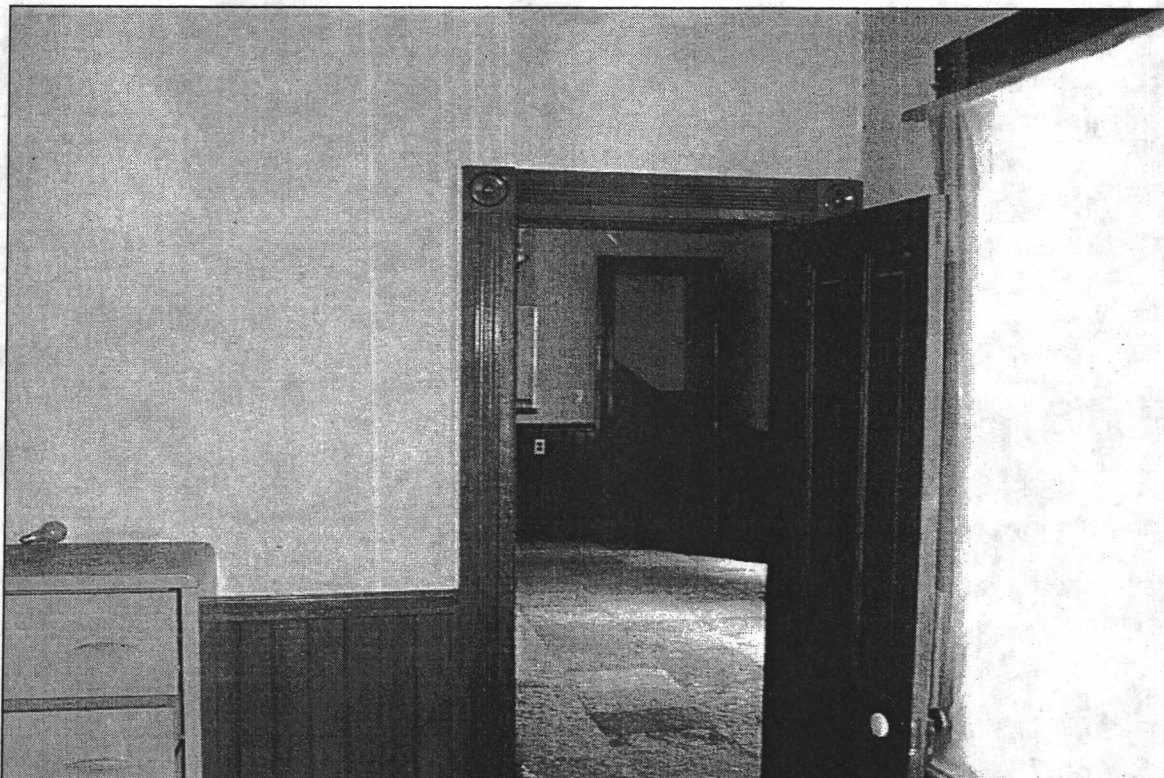
View looking E at Feature 1 in site 24PW0357.



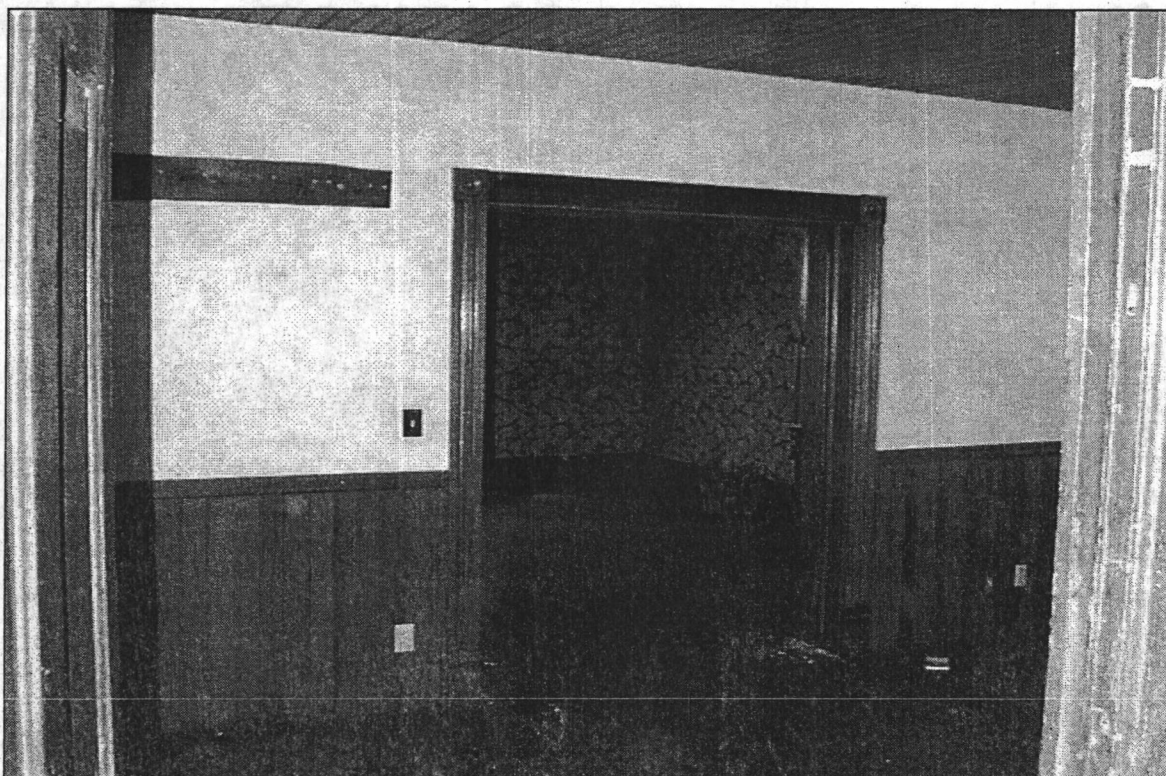
View inside of Feature 1 in site 24PW0357.



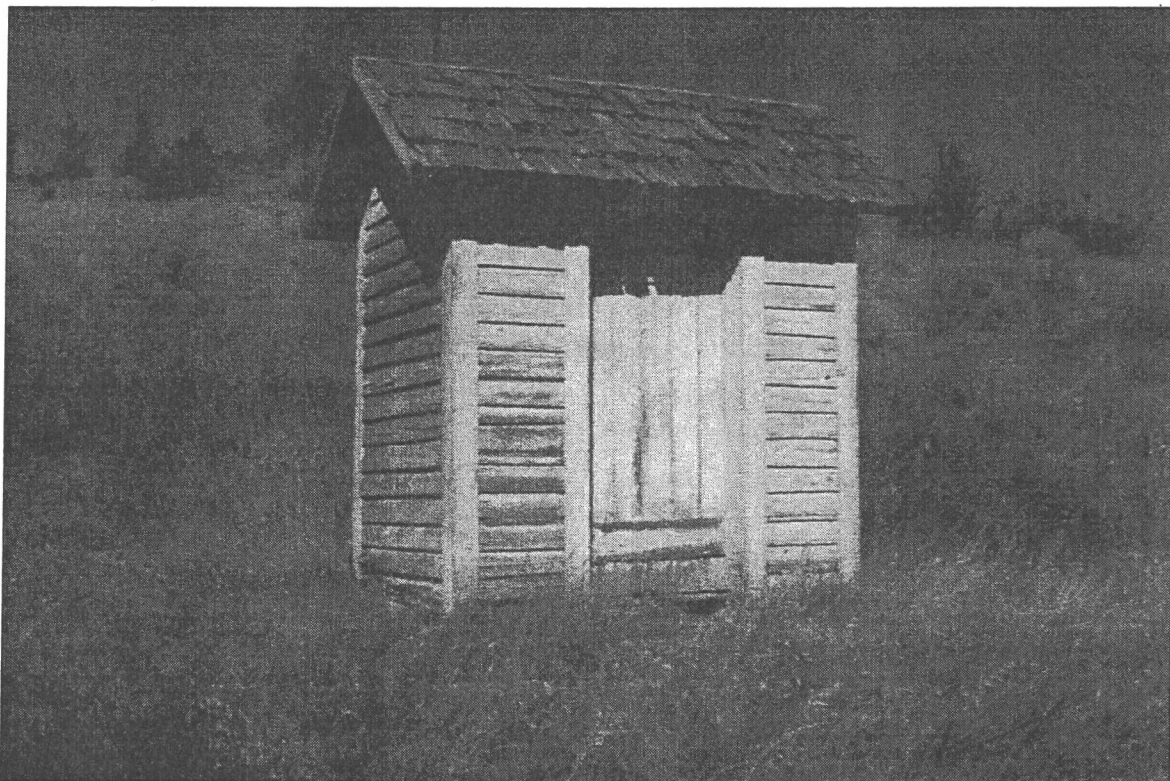
View inside of Feature 1 in site 24PW0357.



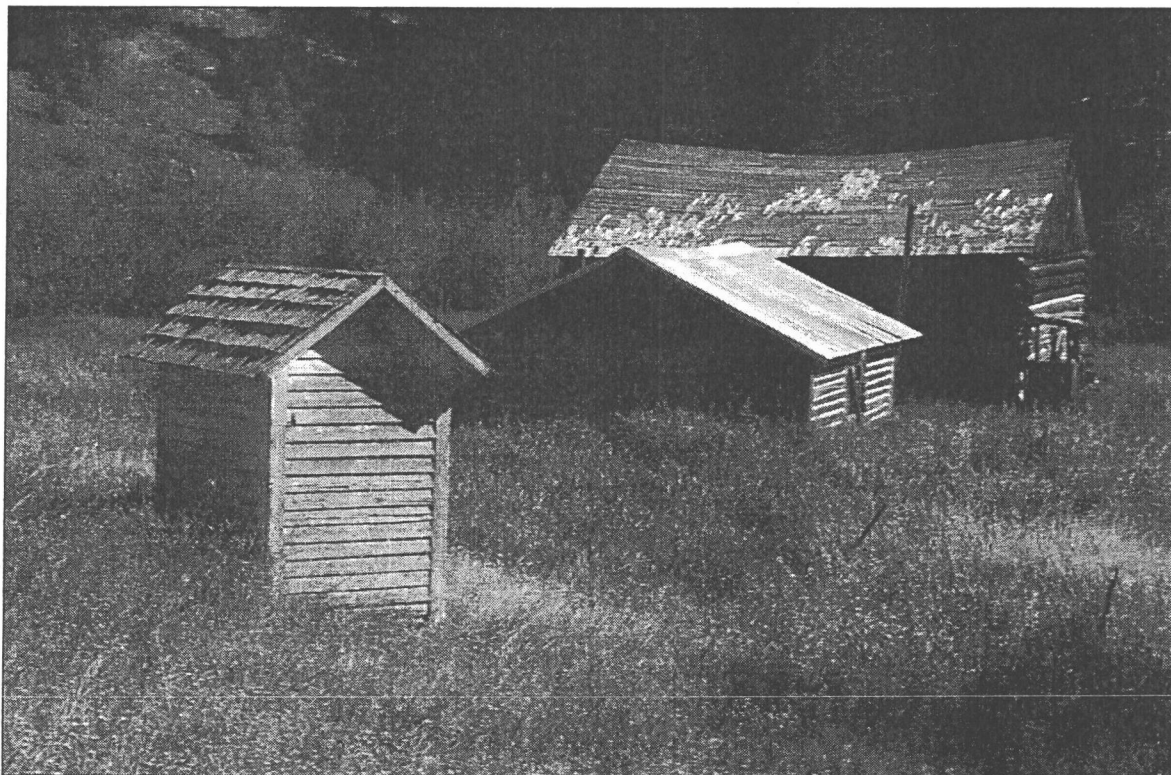
View inside of Feature 1 in site 24PW0357.



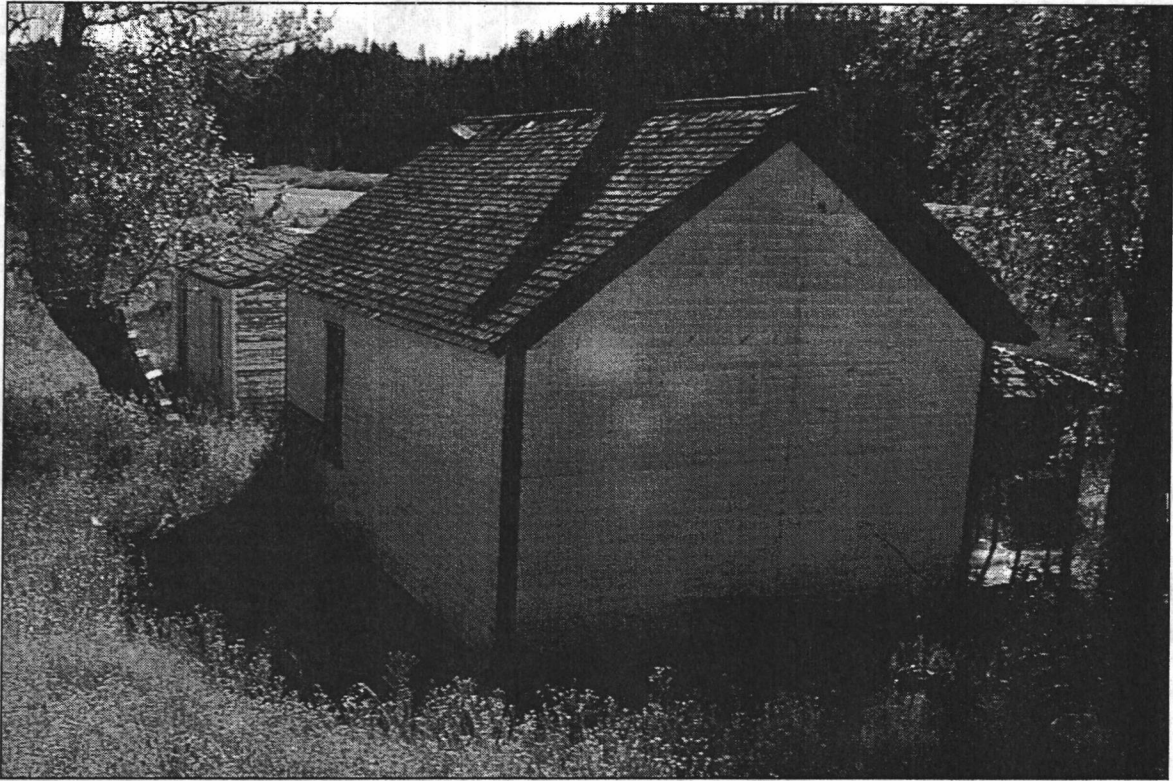
View inside of Feature 1 in site 24PW0357.



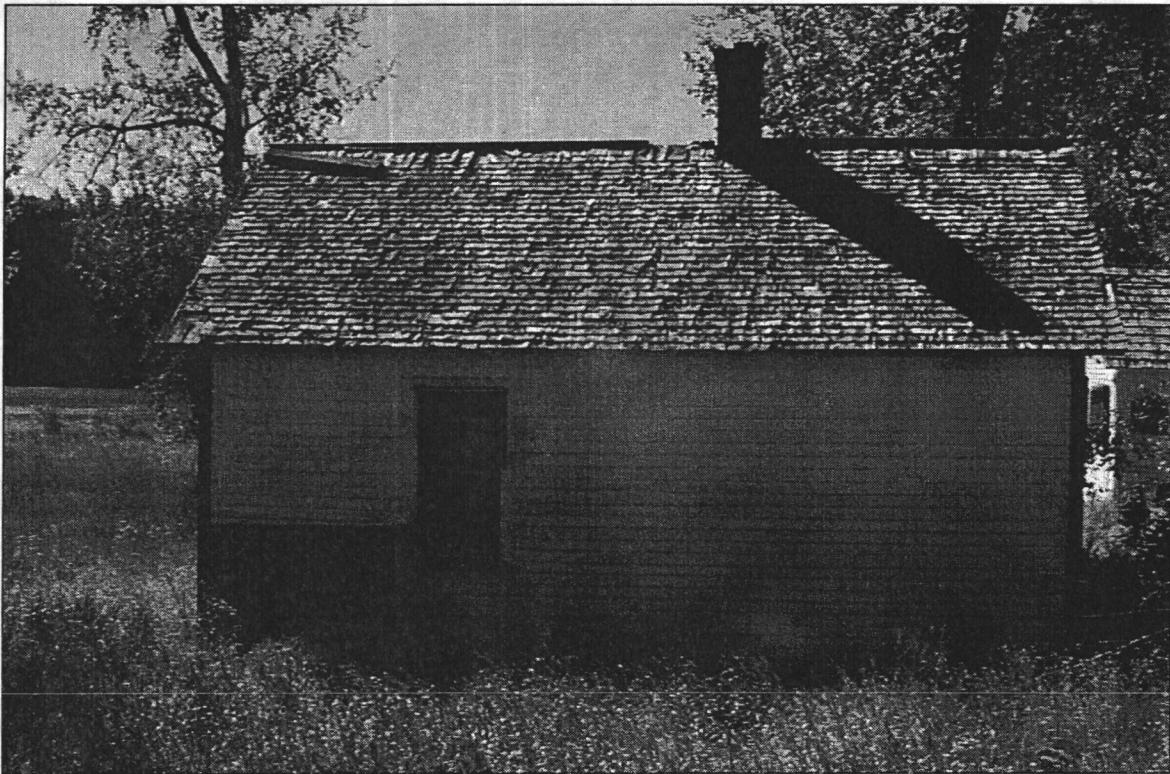
View looking NE at Feature 2 in site 24PW0357.



View looking SE at Feature 2 in relation to Features 6 and 7 in site 24PW0357.



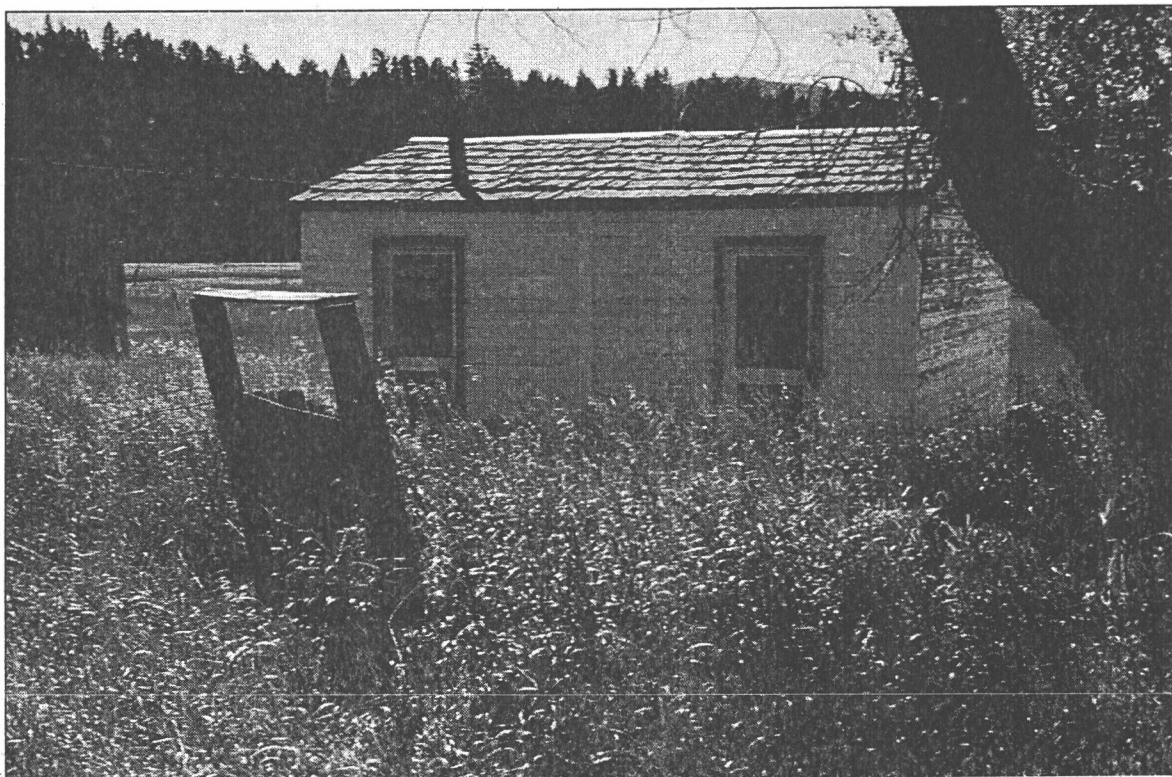
View looking S at Feature 3 in site 24PW0357.



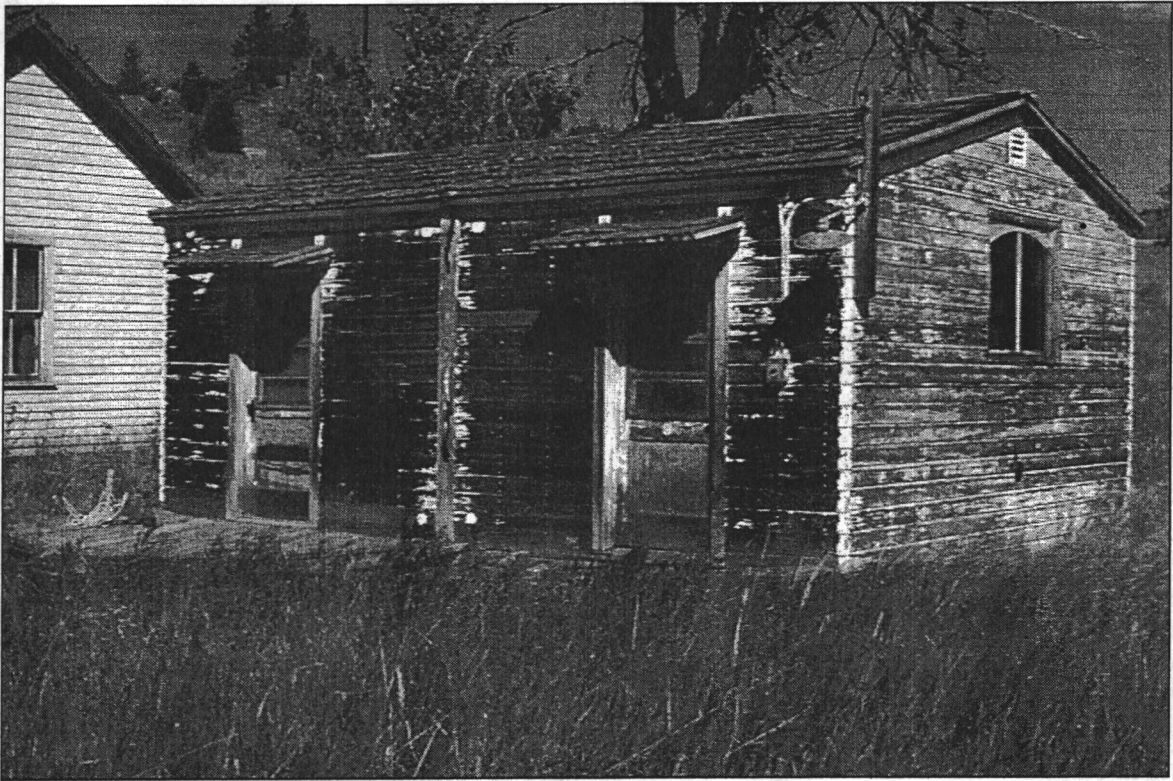
View looking SW at Feature 3 in site 24PW0357.



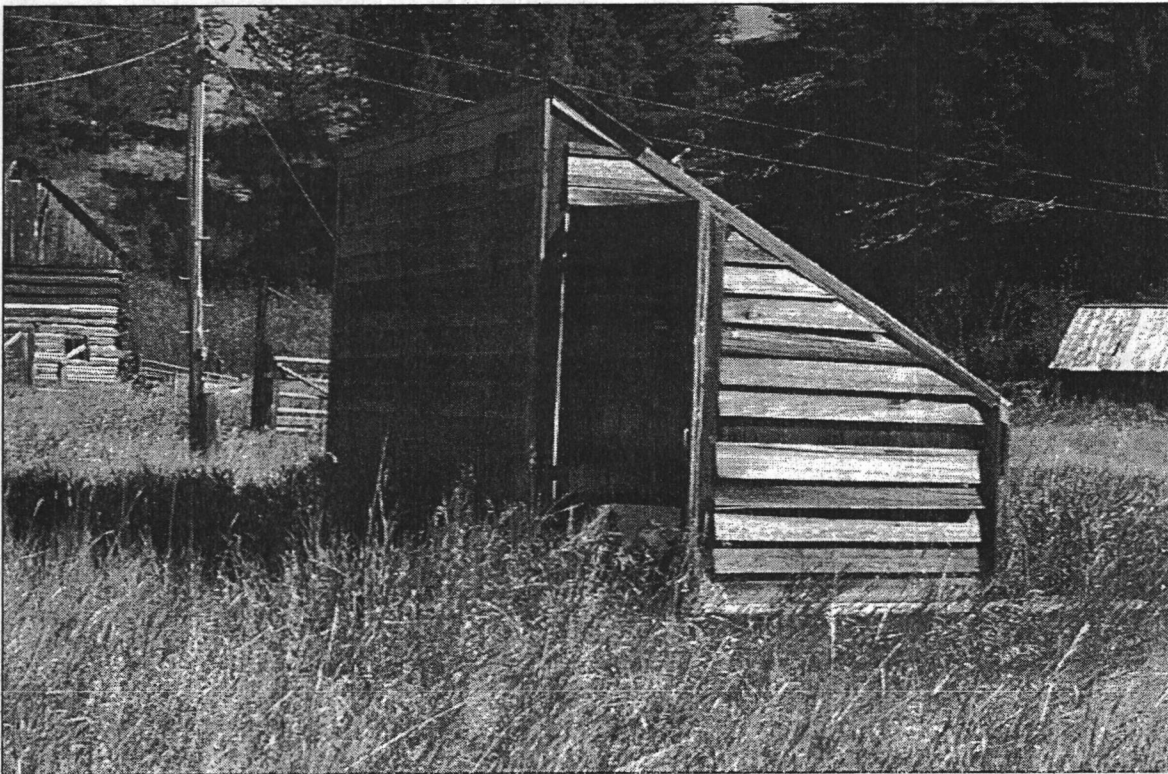
View looking NE at Feature 3 in site 24PW0357.



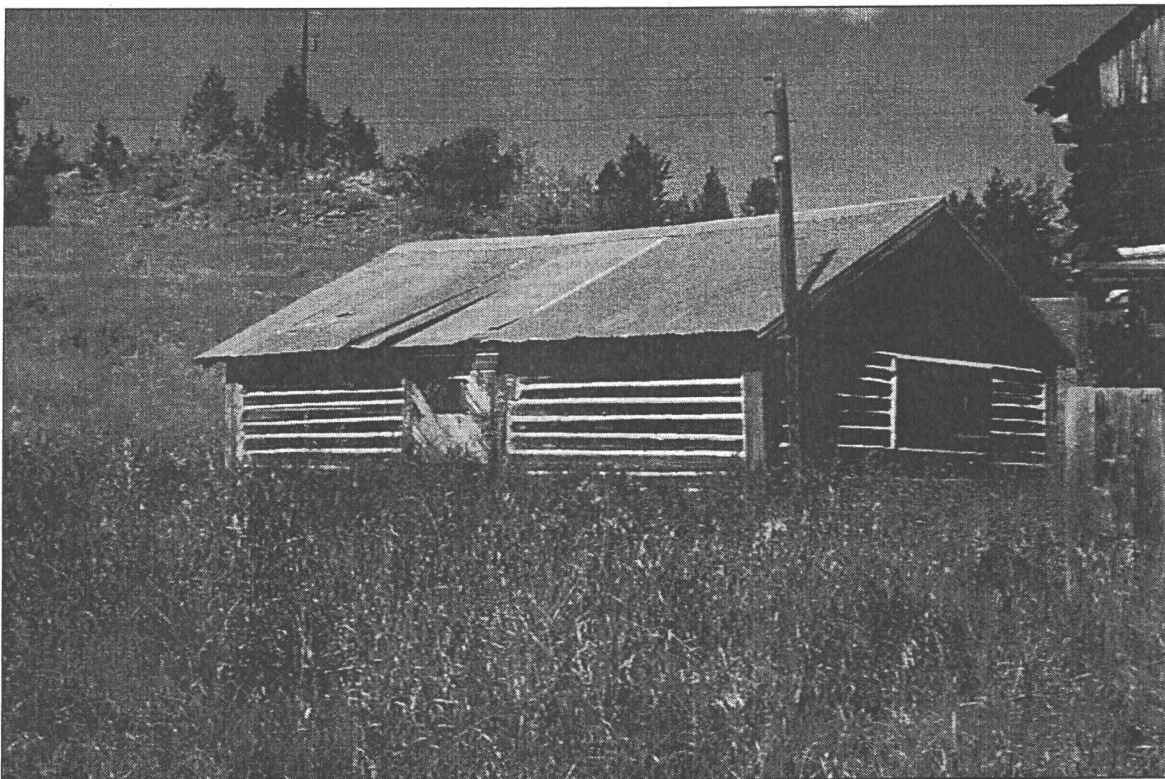
View looking SW at Feature 4 in site 24PW0357.



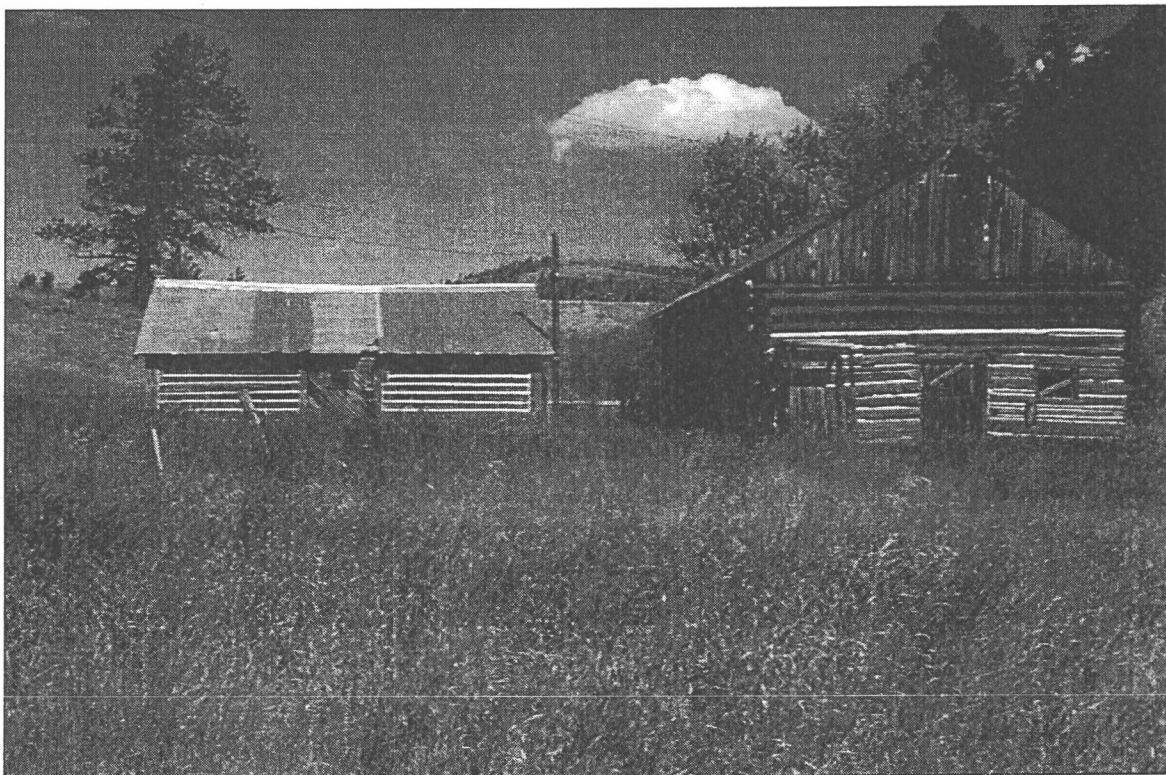
View looking NE at Feature 4 in site 24PW0357.



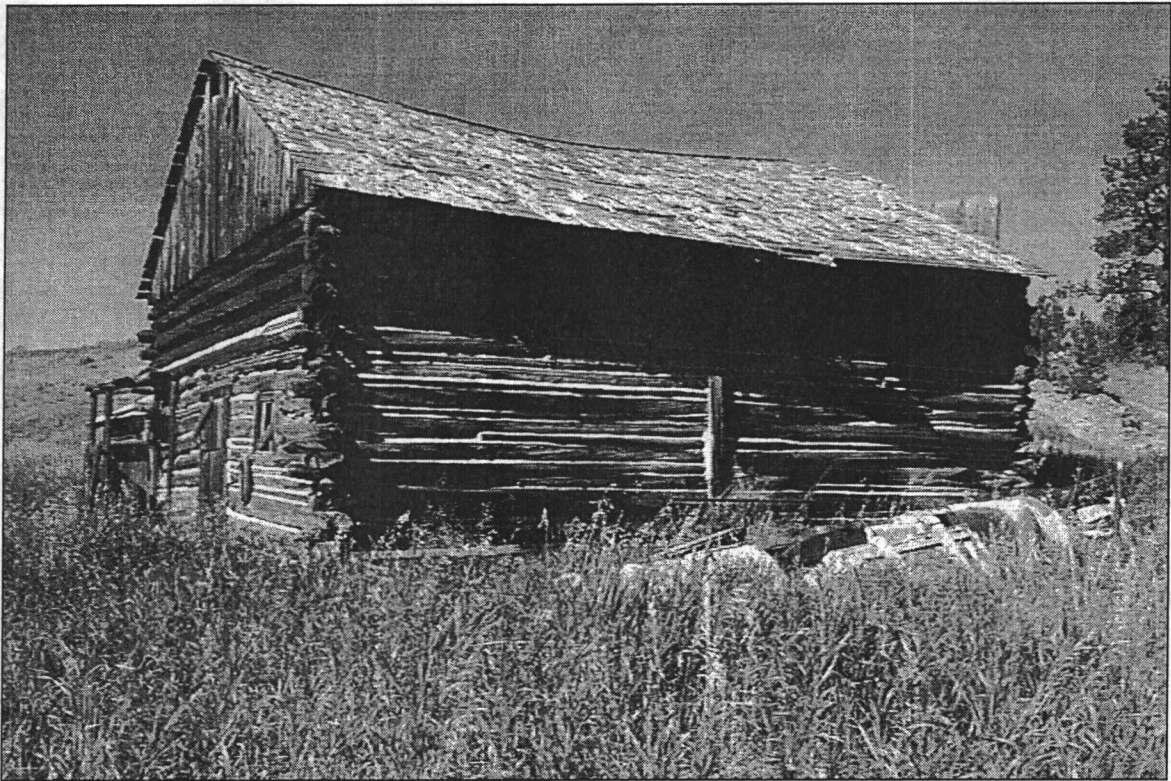
View looking E at Feature 5 in site 24PW0357.



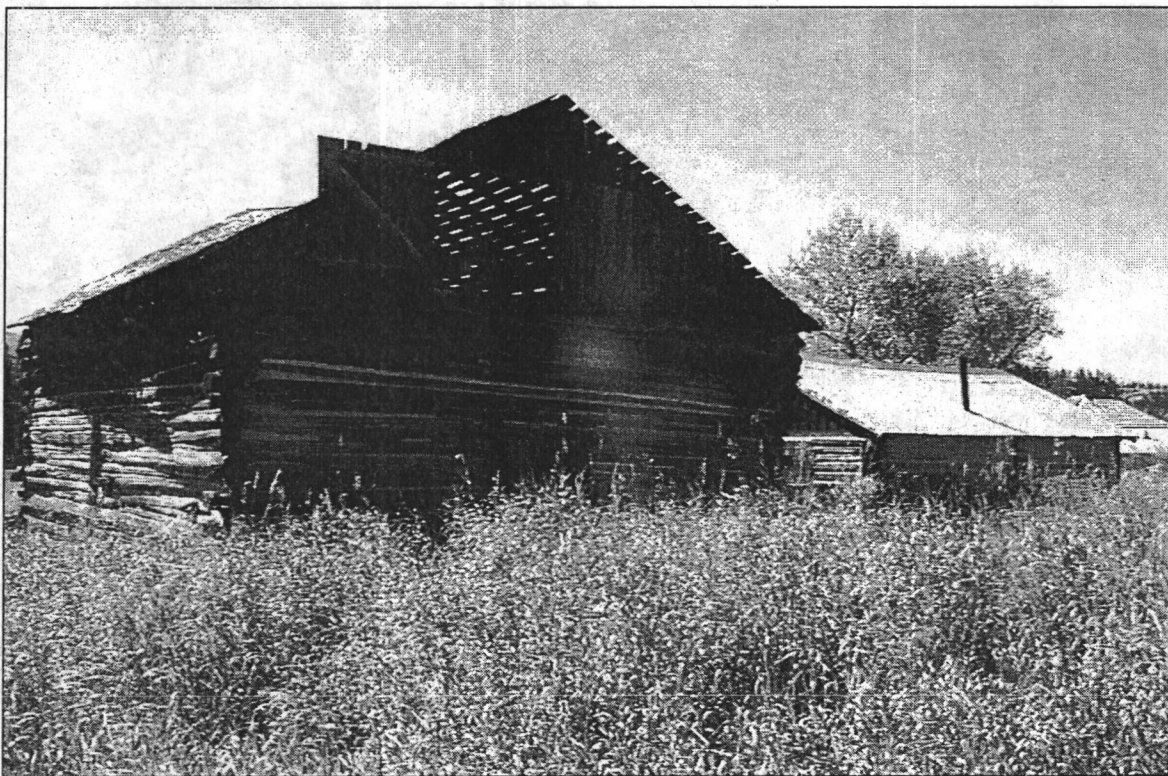
View looking N at Feature 6 in site 24PW0357.



View looking NE at Features 6 and 7 in site 24PW0357.



View looking NW at Feature 7 in site 24PW0357.



View looking SW at Feature 7 and 6 in site 24PW0357.



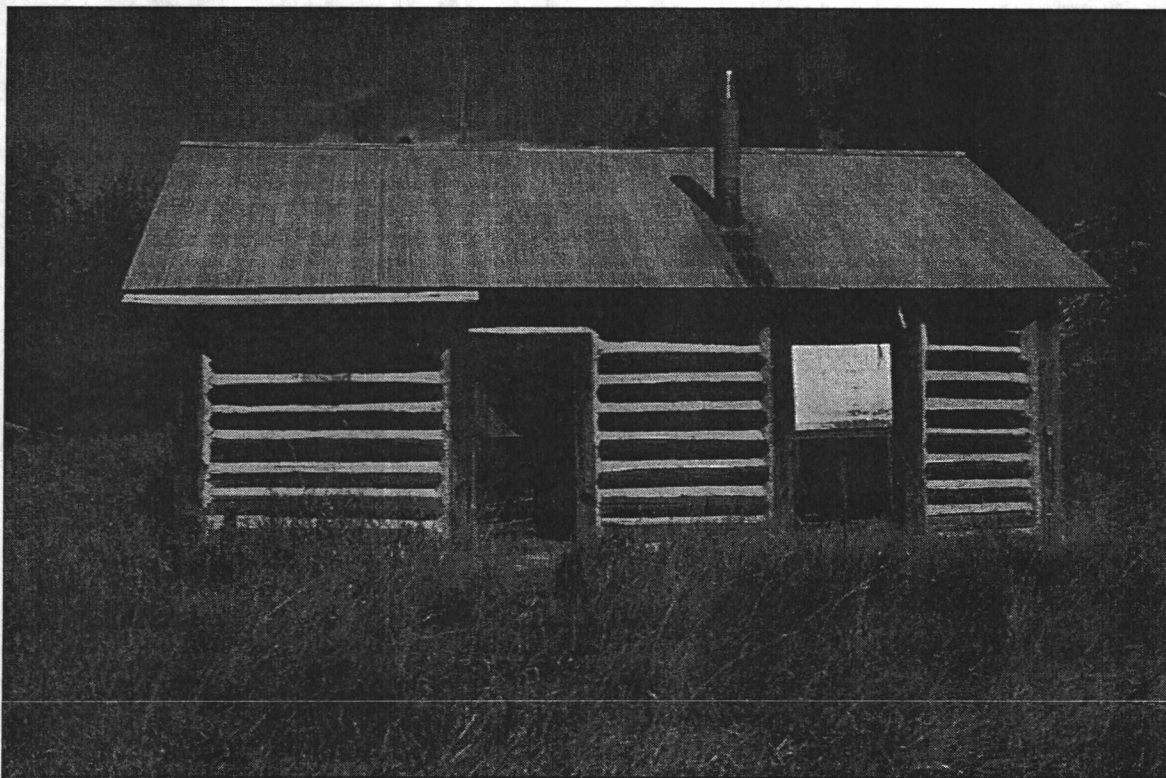
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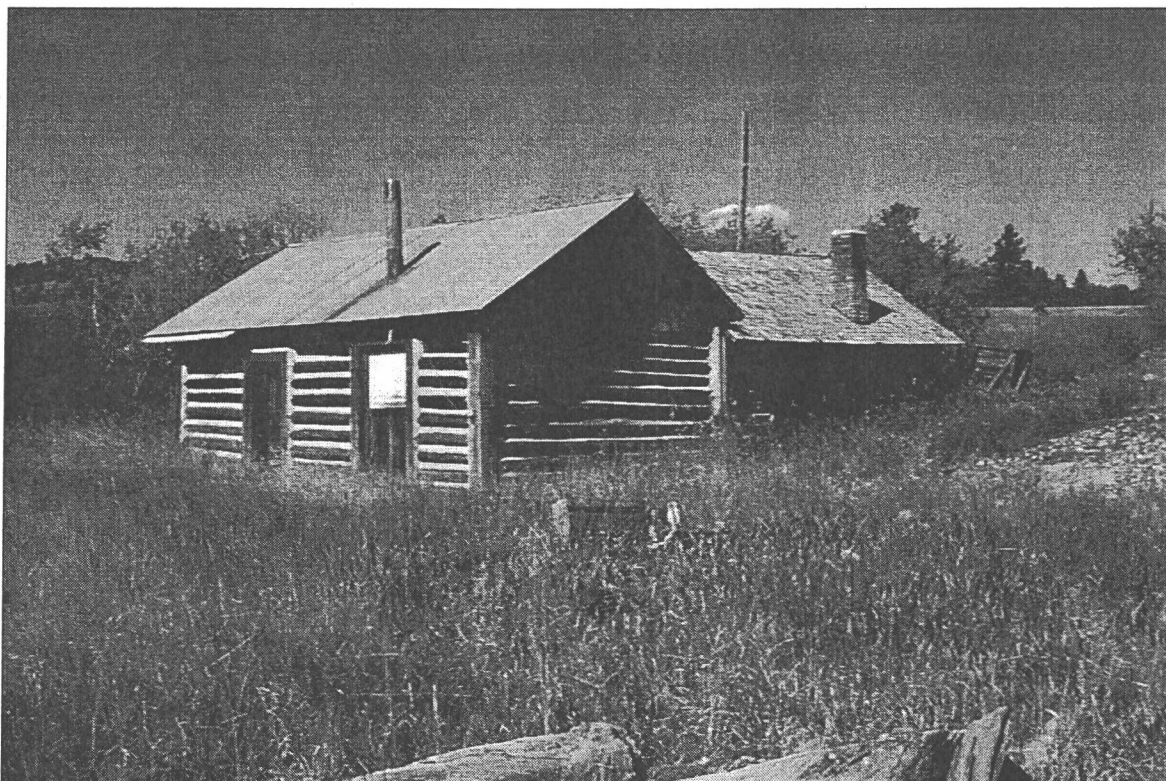
View looking NE at Feature 8 in site 24PW0357.



View looking W at Feature 8 in site 24PW0357.



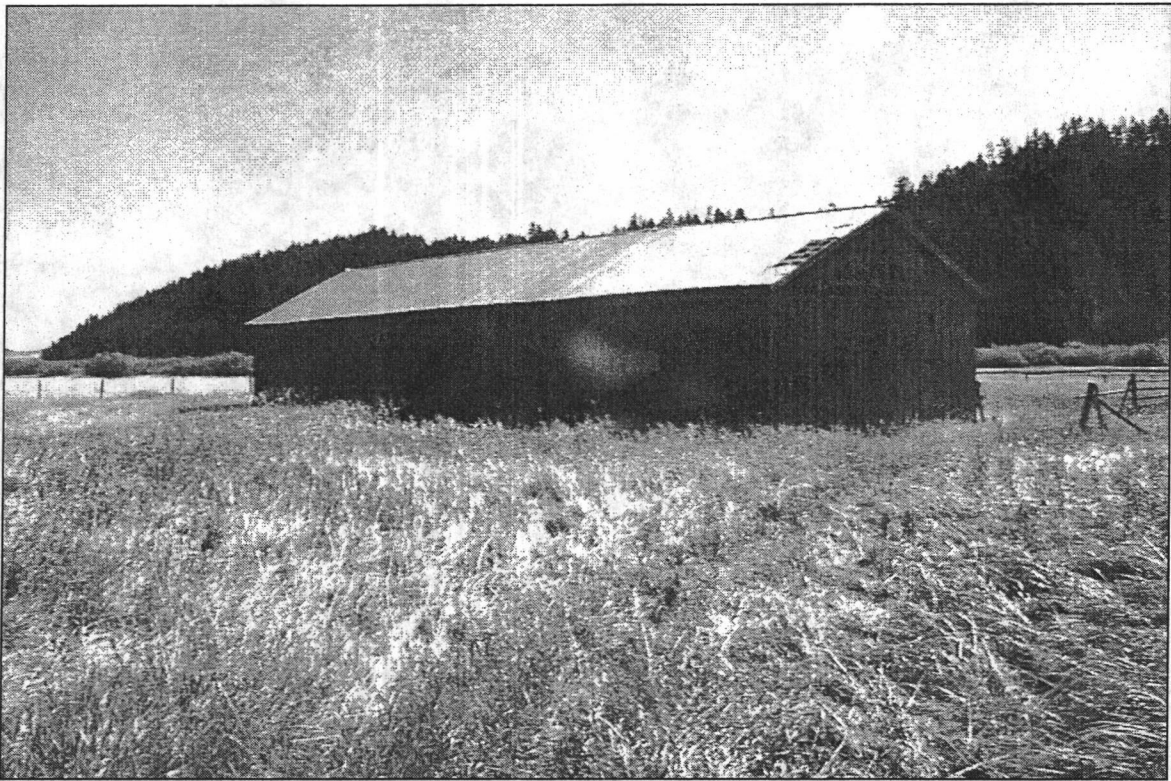
View looking NE at Feature 9 in site 24PW0357.



View looking N at Feature 9 in site 24PW0357.



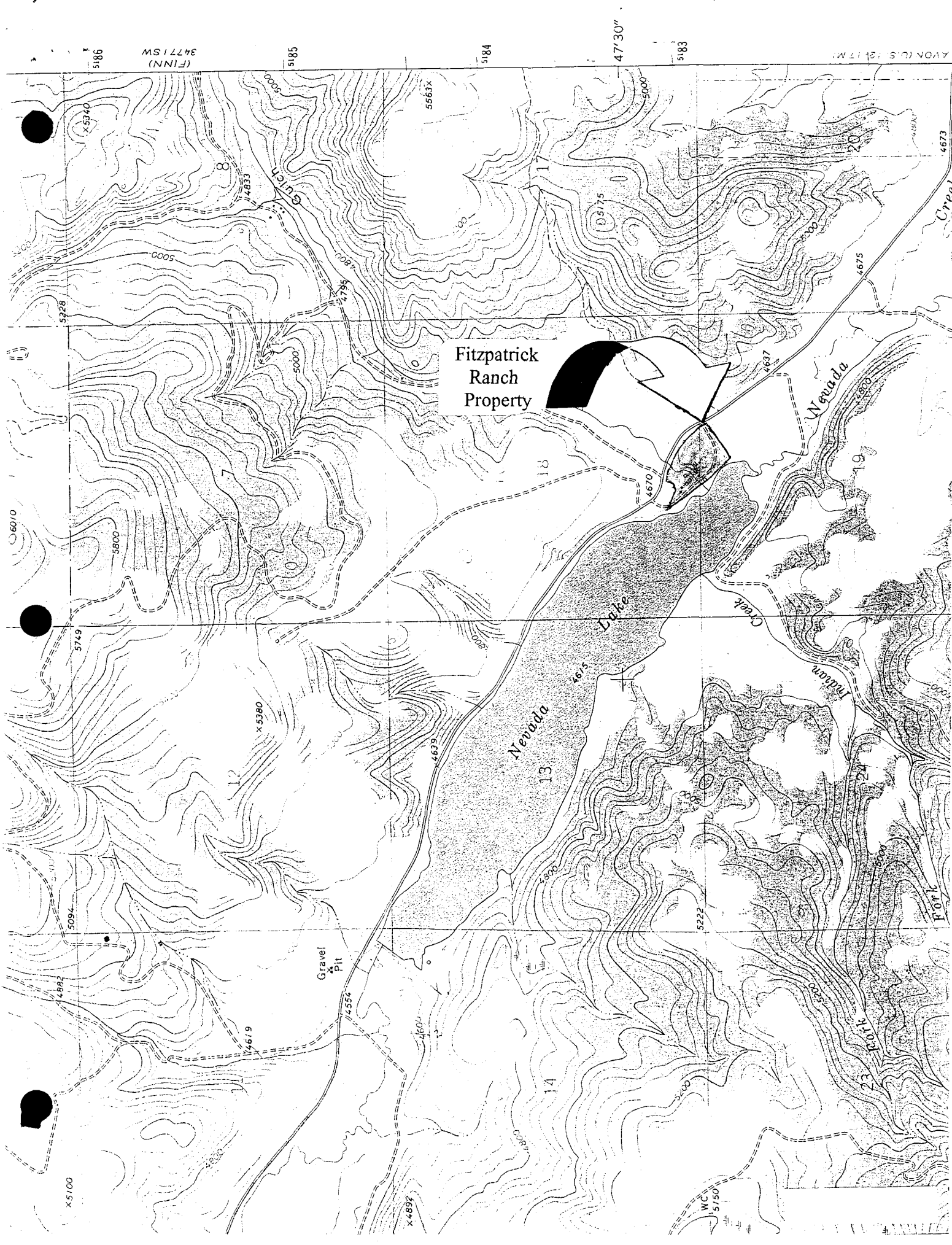
View looking S at Feature 9 in site 24PW0357.



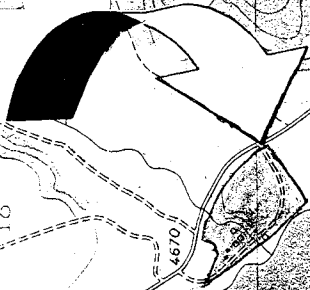
View looking S at Feature 10 in site 24PW0357.



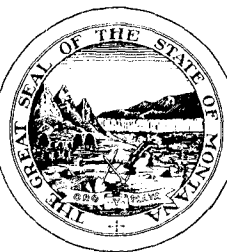
View looking SW at Feature 10 in site 24PW0357.



Fitzpatrick
Ranch
Property



DEPARTMENT OF NATURAL
RESOURCES AND CONSERVATION



JUDY MARTZ
GOVERNOR

DIRECTOR'S OFFICE (406) 444-2074
TELEFAX NUMBER (406) 444-2684

STATE OF MONTANA

WATER RESOURCES DIVISION (406) 444-6601
TELEFAX NUMBERS (406) 444-0533 / (406) 444-5918
<http://www.dnrc.state.mt.us/wrd/home.htm>

1424 9TH AVENUE
PO BOX 201601
HELENA, MONTANA 59620-1601

Cover Letter

December 8, 2003

Governor's Office, Barbara Ranf, Rm. 204, State Capitol, P.O. Box 200801, Helena, MT 59620-0801
Environmental Quality Council, Capitol Building, Room 106, P.O. Box 201704, Helena, MT 59620
Dept. of Environmental Quality, Metcalf Building, P.O. Box 200901, Helena, MT 59620-0901
Director's Office
Dept. of Natural Resources and Conservation, US F&G Bldg. 1625 11th Ave. Helena, MT 59620
Director's Office
Information Services Section
Water Resources Division, 1424 9th Ave, P.O. Box 201601, Helena, MT 59620-1601
Terry McLaughlin, Water Resources Div. Helena Regional Office, 21 N. Last Chance Gulch,
P.O. Box 201601, Helena, MT 59620-1601
Montana Department of Fish, Wildlife & Parks, 1420 E. 6th Ave. Helena, MT 59620
Director's Office
MT Historical Society, State Historic Preservation Office, P.O. Box 201202 Helena, MT 59620-1202
Montana Environmental Information Center, P.O. Box 1184, Helena, MT 59624
Montana Audubon Council, P.O. Box 595, Helena, MT 59624
Powell County Commissioners, 409 Missouri, Deer Lodge, MT 59722
Wildlife Federation, P.O. Box 1175, Helena, MT 59624
Trout Unlimited, P.O. Box 7186, Missoula, MT 59807
Northern Plains Resource Council, 2401 Montana Ave. Suite 200, Billings, MT 59101-2336
Steve Graveley, Nevada Creek Water Users Association, P.O. Box 68, Helmville, MT 59843
John Fitzpatrick, 218 8th Ave. Helena, MT 59601
U.S. Army Corps of Engineers, 301 S. Park Ave. Drawer 10014, Helena, MT 59626-0014
U.S. Fish and Wildlife Service, MT Field Office, 100 N. Park Ave. Helena, MT 59601

Ladies and Gentlemen:

The enclosed Finding of No Significant Impact/Decision Notice has been prepared for the Fitzpatrick Ranch Building Sale. Please contact Tim Kuehn at (406) 444-6655, e-mail tkuehn@state.mt.us should you have any questions about the Finding of No Significant Impact/Decision Notice or the Final EA. Copies of the Final EA are available upon request. The Final EA can also be viewed on the DNRC website at www.dnrc.state.mt.us. Thank you.

Sincerely,


Jack Stults
Water Resources Division Administrator

STATE WATER PROJECTS
BUREAU
(406) 444-6646

WATER MANAGEMENT
BUREAU
(406) 444-6637

WATER OPERATIONS
BUREAU
(406) 444-0860

WATER RIGHTS
BUREAU
(406) 444-6610

FINDING OF NO SIGNIFICANT IMPACT/
NOTICE OF DECISION

December 8, 2003

Dear Reader:

The Montana DNRC released a draft Environmental Assessment (EA) on October 20, 2003 on the Fitzpatrick Ranch Building Sale. The Fitzpatrick Ranch site is located in Powell County Montana on DNRC property adjacent to the Nevada Lake Reservoir, SE-SE-SW1/4 of Section 18, T12N R09W and the N1/2-N1/2-NE-NE-NW1/4 of Section 19, T12N R09W. The proposed action calls for the sale and/or salvage of the ranch main dwelling via a public auction. The auction would be held on-site and main dwelling would either be moved to another location by the successful bidder or salvaged on-site. Other structures could be included in the proposed sale if interest exists. The sale is tentatively scheduled for January or February, 2004.

The public comment period closed on November 21, 2003 with one comment received. The Montana Department of Fish, Wildlife and Parks questioned whether all other options have been adequately investigated, specifically on leasing the site to a public and / or non-profit entity. Also questioned were the existing land use and the "no significant impact" determination to Cultural Resources, Aesthetics/Recreation and if adjacent landowners have been contacted. The current land use is vacant state owned property available to the public for recreational activities. The land use will not change. The DNRC has fulfilled all State requirements concerning consultation with the State Historic Preservation Office (SHPO) under the State Antiquities Act. The SHPO did not provide any comments on the draft EA. The buildings are located below the current spillway design flood elevation. Leasing the buildings to a public, not for profit, or private entity is not a viable option. The Powell County Board of Adjustments recommendation to the DNRC was to "encourage DNRC to sell or give away the buildings and have them moved from the site." On August 20, 1998 in a duly noticed meeting with a quorum present, the Powell County Board of Adjustments took the following action: "Voted unanimously to deny DNRC's request for a variance to section V.D.4 of the Powell County Development Regulations." The buildings are not located within a community or neighborhood; therefore the Department believes the removal of these buildings will not affect the aesthetic character of a community or neighborhood. The site is not clearly visible from State Highway 141. During the summer of 1998, a DNRC representative visited nine (9) adjacent homes and explained the DNRC proposal. None of the nine adjacent households were opposed to the sale.

Based on the criteria evaluated in this EA, no significant impacts, either individually or cumulative will result from the proposed sale. In summary, the liability of having such structures on State Water Projects Bureau property is the main reason for the proposed sale. The proof of liability exists only when an injury occurs and legal action is taken. The DNRC feels it is not prudent to wait until such legal action takes place. Other options, such as leasing or selling the entire 20 acres with the ranch buildings have been investigated. It is the policy of the DNRC to no longer lease such structures for private use. The DNRC State Water Projects Bureau does not have the funding to adequately maintain these buildings. The current subdivision codes of Powell County would not allow for the sale of this property. We believe the site has been adequately documented and recorded, thus mitigating the adverse impact to the site's cultural resources, and the sale and removal or salvage option (alternative 4) is the best remaining course of action. The DNRC concludes that the proposed action will not result in any significant impacts. The DNRC will adopt the draft EA as the final EA and proceed with the preferred alternative 4. Copies of the Final EA are available upon request. The Final EA can be viewed on the DNRC website at www.dnrc.mt.us in the Environmental Documents section. Please direct any questions to:

Tim Kuehn at (406) 444-6655, e-mail: tkuehn@state.mt.us
DNRC, 1424 9th Avenue, P.O. Box 201601
Helena, MT 59620-1601

Thank you for your interest.

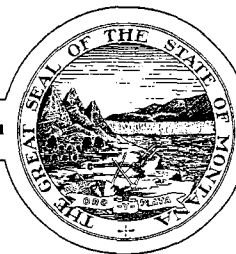
Sincerely,



Jack Stults
Water Resources Division Administrator

DEPARTMENT OF NATURAL RESOURCES
AND CONSERVATION

MAR 1 2005



BRIAN SCHWEITZER
GOVERNOR

LIBRARY
MONTANA HISTORICAL SOCIETY
DEPOSITORY

DIRECTOR'S OFFICE (406) 444-2074
TELEFAX NUMBER (406) 444-2684

STATE OF MONTANA

WATER RESOURCES DIVISION (406) 444-6601
TELEFAX NUMBERS (406) 444-0533 / (406) 444-5918
<http://www.dnrc.mt.gov>

1424 9TH AVENUE
PO BOX 201601
HELENA, MONTANA 59620-1601

Cover Letter

February 4, 2005

TO: Governor's Office, Bruce Nelson, Rm. 204, State Capitol, P.O. Box 200801, Helena, MT 59620-0801
Environmental Quality Council, Capitol Building, Room 106, P.O. Box 201704, Helena, MT 59620
Dept. of Environmental Quality, Metcalf Building, P.O. Box 200901, Helena, MT 59620-0901
Director's Office
Dept. of Natural Resources and Conservation, US F&G Bldg. 1625 11th Ave. Helena, MT 59620
Director's Office
Information Services Section
Water Resources Division, 1424 9th Ave., P.O. Box 201601, Helena, MT 59620-1601
Trust Land Management Division, 1625 11th Avenue, Helena, MT 59601-4600
Montana Department of Fish, Wildlife & Parks, 1420 E. 6th Ave. Helena, MT 59620
Director's Office
Steve Leathe, DFWP Region 4 Office, 4600 Giant Springs Rd. Great Falls, MT 59405
Dave Yerk, DFWP, P.O. Box 733, Choteau, MT 59422
MT Historical Society, State Historic Preservation Office, P.O. Box 201202 Helena, MT 59620-1202
MT State Library, 1515 E. Sixth Ave., P.O. Box 201800, Helena, MT 59620
Richard Artz, Nilan Water Users Association, Eberl Lane, Augusta, MT 59410
Montana Environmental Information Center, P.O. Box 1184, Helena, MT 59624
Montana Audubon Council, P.O. Box 595, Helena, MT 59624
Lewis & Clark County Commissioners, 316 North Park Ave. Helena, MT 59601
JT Weisner, P.O. 286, Augusta, MT 59410-0286
LF Ranch, P.O. Box 367, Augusta, MT 59410-0367
Mr. Benjamin Pierce, 755 Oneida Street, Denver, CO 80220
Wildlife Federation, P.O. Box 1175, Helena, MT 59624
Trout Unlimited, P.O. Box 7186, Missoula, MT 59807
Northern Plains Resource Council, 2401 Montana Ave. Suite 200, Billings, MT 59626-2336
U.S. Army Corps of Engineers, 301 S. Park Ave. Drawer 10014, Helena, MT 59626-0014
U.S. Fish and Wildlife Service, MT Field Office, 100 N. Park Ave. Suite 320, Helena, MT 59601

Ladies and Gentlemen:

The enclosed Environmental Assessment (EA) has been prepared for the Smith Canal Rehabilitation and Culvert Replacement Project and is submitted for your consideration. Please feel free to contact me at (406) 444-6622 (e-mail jdomino@state.mt.us) should you have any questions or comments. Comments will be accepted until 5:00 p.m., Monday, February 28th, 2005. Address all comments to: James P. Domino DNRC Water Resources Division, State Water Projects Bureau, 1424 9th Ave. P.O. Box 201601, Helena, MT 59620-1601.

Copies of the EA are available upon request. The EA can also be viewed on the DNRC website at www.dnrc.state.mt.us. Thank you.

Sincerely,

James P. Domino

James P. Domino
Environmental Science Specialist
State Water Projects Bureau

STATE WATER PROJECTS
BUREAU
(406) 444-6646

WATER MANAGEMENT
BUREAU
(406) 444-6637

WATER OPERATIONS
BUREAU
(406) 444-0860

WATER RIGHTS
BUREAU
(406) 444-6610

DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION
WATER RESOURCES DIVISION, STATE WATER PROJECTS BUREAU
1424 9th Avenue, P.O. Box 201601
Helena, MT 59620-1601

ENVIRONMENTAL ASSESSMENT

SMITH CANAL REHABILITATION AND CULVERT REPLACEMENT PROJECT

I. BACKGROUND

This Environmental Assessment (EA) has been prepared to comply with the Montana Environmental Policy Act (MEPA).

1. General Description

The Nilan Storage Project is located in the northern portion of Lewis and Clark County, Montana, west of the town of Augusta. The project was constructed in the early 1950s. It consists of diversion canals from Smith and Ford Creeks, which divert water to an off-stream storage reservoir. The Smith Creek Diversion Canal diverts water from the north bank of Smith Creek in the northeast quarter of the southwest quarter of the northeast quarter of section 4, township 19 north, range 8 west. It courses northeasterly from there to the end of a ridge in section 26, township 20 north, range 8 west, doubles around the end of that ridge, and drops water into Ford Creek. The Ford Creek diversion canal picks the water up from there and delivers it to the Nilan Reservoir. As constructed, the 4.1-mile-long Smith Creek diversion canal has a capacity of 200 cubic feet per second. The canal prism was designed with a 14-foot-wide bottom and banks, typically, 6 feet high. The diversion works consist of a 1.75-foot-high, 108-foot-long concrete diversion dam/weir and double-gated concrete headworks.

Proposed Modifications

The currently proposed rehabilitation concerns only the Smith Creek Diversion Canal. Due to siltation upstream of the double headgate, only one of the gates is operable. The upper portion of the canal is silted in to a depth of as much as 4 feet. The entire length of the canal has cottonwood and willow trees growing inside the canal prism. The deteriorated original bridges have been replaced with undersized culverts. Much of the water diverted is lost to seepage. The canal is able to convey only a very small portion of the original design capacity in its current condition.

SCOPE OF PROPOSED PROJECT:

The Nilan Water Users Association, along with DNRC's State Water Projects Bureau, plans to:

1. Remove depositional material from the creek bed upstream and downstream of the diversion weir to improve the functionality of the diversion.
2. Remove silt deposits from in front of the headworks to ensure operability of both headgates.
3. Reconstruct the canal to its original design grade and section.
4. Remove trees, willows, and brush from inside the canal prism.
5. Line the worst areas of the canal to reduce seepage.
6. Replace the undersized crossing culverts with appropriately sized culverts or bridges.
7. Reclaim and reseed any areas disturbed by the above activities.
8. Implement weed control measures.

Additional information:

Construction is tentatively planned to begin in early March, 2005, with the project completed within one month.

Equipment to be used would include a backhoe, front-end loader, tracked excavator, chain saws, and hand tools.

The total disturbed area will be less than 5 acres. Approximately 1,000 cubic yards of sediment is expected to be removed along the 1,300-foot reach.

Appendix B contains project site and structure photographs, tentative construction schedule, easement deed and location maps.

2. Location of Project

The proposed project is located in Lewis and Clark County, west of Augusta, Montana. The Smith Creek Diversion Canal diverts water from the north bank of Smith Creek in the northeast quarter of the southwest quarter of the northeast quarter of section 4, township 19 north, range 8 west. It courses northeasterly from there to the end of a ridge in section 26, township 20 north, range 8 west, doubles around the end of that ridge, and drops water into Ford Creek. The LF Ranch owns the surrounding land. The DNRC has a permanent easement for the canal, including access for maintenance and repair purposes.

3. Purpose and Need for the Project

The Smith Canal is one of the main supply canals for Nilan Reservoir. The canal currently has a greatly diminished capacity due to brush, debris and sediment accumulation. The proposed rehabilitation would return the canal to its design capacity of 200 cfs and enhance the supply of water to the Nilan Reservoir.

II. ENVIRONMENTAL REVIEW

Whenever possible, effects to the environment will be avoided. Where effects cannot be avoided, they will be minimized to the extent possible.

1. Environmental Impact Checklist

An environmental checklist has been included as **Appendix A**.

2. Environmental Consequences

Air

During construction, equipment emissions will contain some pollutants. Because of the rural location of the site, these emissions should not impact adjacent property owners.

Because of the timing and anticipated high water content of local soils during construction, dust should not be significant and that dust control will not be necessary.

Water

The canal will be dry during construction. The work on the diversion structure in Smith Creek would be accomplished when the creek is dry, before the main spring runoff. A temporary and slight degradation of water quality is likely to occur due to sediments. This should happen only as water begins flowing in Smith Creek. Any downstream water quality impacts would be minor and temporary. The short project duration, and the regrading of the stream bank to its original contours to reduce erosion would minimize

potential impacts. Fuel storage and equipment refueling will take place away from both the stream channel and the canal prism. The amount of water diverted into the canal would potentially be increased up to the original design capacity of the canal (200 cfs). Downstream flows in Smith Creek may be reduced periodically due to the increased canal capacity. Any potential impacts would be temporary, short-term and non-significant.

Vegetation

The disturbed area of the construction site will be no greater than 5 acres, with the existing vegetation consisting primarily of cottonwood, willow, aspen, grasses and small shrubs and brush. All disturbed areas would be re-vegetated by re-seeding. A weed control program will be implemented until vegetation is re-established.

Fish and Wildlife

No impacts are anticipated to any threatened, endangered or species of special concern.

Wildlife: No impacts to wildlife are anticipated. A file search was conducted by the MT Natural Heritage Program. Grizzly bears have been sighted in the project area in the past; however the timing and nature of the project should prevent any conflicts or impacts. The area is also listed as lynx habitat and Nilan Reservoir is listed as potential swan nesting habitat. No impacts to these or any other wildlife species of species of special concern are anticipated.

Fisheries: No impacts to fisheries resources are anticipated. Smith Creek is normally dry and not flowing during the proposed work timeframe. Downstream sedimentation from the construction would be minimal and occur only for a short time period before the spring runoff. The effect of increased flows in the canal should not significantly affect downstream fisheries resources.

Noise

Noise levels will increase temporarily during the construction period. Because of the rural location of the site, construction noise would not impact the adjacent landowners. Impacts from construction noise to wildlife are expected to be negligible and will end upon completion of the project.

Land Use

There will be no change in land use.

Taxes

The tax base will not be affected.

Recreation

Will not be affected. The project location is entirely on private land. Recreational access is at the discretion of the landowner.

Cultural Resources

No archeological sites are known to exist in the proposed project area and no impacts are anticipated. The Montana Historical Society has been notified of the project. The Nilan Water Project has been documented (Smithsonian Site No. 24LC1818) and was recommended as ineligible for inclusion in the National Register.

III. ALTERNATIVES

1. No Action Alternative

The canal would continue to function at a greatly diminished capacity, negatively impacting the ability to divert water to Nilan Reservoir. This could potentially negatively effect the fulfillment of water rights associated with the Nilan Project.

IV. CONSULTATION AND COORDINATION

1. Agencies Consulted

Federal and State Government agencies and private organizations were contacted regarding the rehabilitation construction proposal:

Agency Name

Type of Responsibility

U.S. Army Corps of Engineers
Montana Dept. of Fish, Wildlife & Parks
Montana Dept. of Environmental Quality
Montana State Historic Preservation Office
Montana Natural Heritage Program
U.S. Fish and Wildlife Service

regulatory/technical
regulatory/technical
regulatory/technical
advisory
advisory
regulatory

2. Permits Required

The following permits will be needed for the project:

Permit	Issuing Agency	Status
124-Permit	DFWP	Pending

3. Public Involvement

Public comments will be solicited through the distribution of the draft EA to those listed on the cover page, and publication on the DNRC website.

V. CONCLUSION

Based on the criteria evaluated in this EA, no significant impacts, either individually or cumulative will result from the project.

PART II. ENVIRONMENTAL CHECKLIST REVIEW

1. PHYSICAL ENVIRONMENT

IMPACTS

UNKNOWN*	NO IMPACTS	MINOR IMPACTS:*	POTENTIALLY SIGNIFICANT IMPACTS:*	CAN IMPACTS BE MITIGATED *	COMMENT INDEX
1. LAND RESOURCES					
Will the proposed action result in:					
a. Soil instability or changes in geologic substructure?	X				
b. Disruption, displacement, erosion, compaction, moisture loss, or over-covering of soil which would reduce productivity or fertility?	X				
c. Destruction, covering or modification of any unique geologic or physical features?	X				
d. Changes in siltation, deposition or erosion patterns that may modify the channel of a river or stream or the bed or shore of a lake?		X		See 1d comment	1d.
e. Exposure of people or property to earthquakes, landslides, ground failure, or other natural hazard?	X				
f. Other: _____					

Note: 1d. The construction would cause a temporary, non-significant and minor increase in sediments within the stream channel, primarily during the spring runoff. The effect would be mitigated by reshaping the stream bank to its original contour and reseeding disturbed areas upon project completion.

**PHYSICAL
ENVIRONMENT**
(Continued)

IMPACTS

UNKNOWN*	NO IMPACTS	MINOR IMPACTS:*	POTENTIALLY SIGNIFICANT IMPACTS:*	CAN IMPACTS BE MITIGATED *	COMMENT INDEX
<p>2. <u>AIR</u></p> <p>Will the proposed action result in:</p> <p>a. Emission of air pollutants or deterioration of ambient air quality?</p> <p>b. Creation of objectionable odors?</p> <p>c. Alteration of air movement, moisture, or temperature patterns or any change in climate, either locally or regionally?</p> <p>d. Adverse effects on vegetation, including crops, due to increased emissions of pollutants?</p> <p>e. Other: _____</p>		<p>X</p> <p>X</p>		<p>See 2a. comment</p> <p>See 2b. comment</p>	<p>2a.</p> <p>2b.</p>

Note: 2a. & b.) During construction, equipment emissions will contain some pollutants and odors. This would end upon project completion.

IMPACTS

Note: 3b, c and d.) The amount of water diverted into the canal would potentially be increased, up to the design capacity (200 cfs). Downstream flows in Smith Creek may be reduced periodically due to the increased canal capacity. Any potential impacts would be temporary, short-term and non-significant.

**PHYSICAL
ENVIRONMENT**
(Continued)

IMPACTS

UNKNOWN*	NO IMPACTS	MINOR IMPACTS:*	POTENTIALLY SIGNIFICANT IMPACTS:*	CAN IMPACTS BE MITIGATED *	COMMENT INDEX
<p>4. <u>VEGETATION</u></p> <p>Will the proposed action result in:</p> <p>a. Changes in the diversity, productivity or abundance of plant species (including trees, shrubs, grass, crops, and aquatic plants)?</p> <p>b. Alteration of a plant community?</p> <p>c. Adverse effects on any unique, rare, threatened, or endangered plant species?</p> <p>d. Reduction in acreage or productivity of any agricultural land?</p> <p>e. Establishment or spread of noxious weeds?</p> <p>f. Other: _____</p>		X		See 4a. comment	4a.
	X				
	X				4c.
	X				
	X				

Note:

4a.) Less than five acres of vegetation would be disturbed, consisting mostly of sage, grasses, aspens, cottonwoods and willows. All disturbed areas would be reclaimed and reseeded upon project completion.

4c.) A file search was conducted by the Montana Natural Heritage Program. No impacts are anticipated to any threatened, endangered or plant species of special concern.

**PHYSICAL
ENVIRONMENT
(Continued)**

IMPACTS

UNKNOWN*	NO IMPACTS	MINOR IMPACTS:*	POTENTIALLY SIGNIFICANT IMPACTS:*	CAN IMPACTS BE MITIGATED *	COMMENT INDEX
5. <u>FISH/WILDLIFE</u>					
Will the proposed action result in:					
a. Deterioration of critical fish or wildlife habitat?	X				
b. Changes in the diversity or abundance of game animals or bird species?	X				5b.
c. Changes in the diversity or abundance of nongame species?	X				5c.
d. Introduction of new species into an area?	X				
e. Creation of a barrier to the migration or movement of animals?	X				
f. Adverse effects on any unique, rare, threatened, or endangered species?	X				5f.
g. Increase in conditions that stress wildlife populations or limit abundance (including harassment, legal or illegal harvest or other human activity)?	X				
h. Other: _____					

Note:

5b,c and f.) A file search was conducted by the MT Natural Heritage Program. No impacts are anticipated to any threatened, endangered, or wildlife or fish species of special concern. Grizzly bears have been sighted in the project area in the past; however the timing and nature of the project should prevent any conflicts or impacts. The area is also listed a lynx habitat and Nilan Reservoir is listed as potential swan nesting habitat. No impacts to these or any other wildlife or fisheries species of species of special concern are anticipated.

**2. HUMAN
ENVIRONMENT**

IMPACTS

	UNKNOWN*	NO IMPACTS	MINOR IMPACTS:*	POTENTIALLY SIGNIFICANT IMPACTS:*	CAN IMPACTS BE MITIGATED *	COMMENT INDEX
6. NOISE/ELECTRICAL EFFECTS						
Will the proposed action result in:						
a. Increases in existing noise levels?			X		See 6a. comment	6a.
b. Exposure of people to severe or nuisance noise levels?			X		See 6b. comment	6b.
c. Creation of electrostatic or electromagnetic effects that could be detrimental to human health or property?		X				
d. Interference with radio or television reception and operation?		X				
e. Other: _____						

Note: 6a.) Noise levels will increase temporarily during the construction period. However, this is a very rural area. The impact will end upon completion of the project.
6b.) (Same as item a. above)

HUMAN ENVIRONMENT
(Continued)

IMPACTS

UNKNOWN*	NO IMPACTS	MINOR IMPACTS:*	POTENTIALLY SIGNIFICANT IMPACTS:*	CAN IMPACTS BE MITIGATED *	COMMENT INDEX
<p>7. <u>LAND USE</u></p> <p>Will the proposed action result in:</p> <p>a. Alteration of or interference with the productivity or profitability of the existing land use of an area?</p> <p>b. Conflict with a designated natural area or area of unusual scientific or educational importance?</p> <p>c. Conflict with any existing land use whose presence would constrain or potentially prohibit the proposed action?</p> <p>d. Adverse effects on or relocation of residences?</p> <p>e. Increase regulatory restrictions on private property rights?</p> <p>f. Other: _____</p>	<p>X</p> <p>X</p> <p>X</p> <p>X</p> <p>X</p>				

Note:

HUMAN ENVIRONMENT
(Continued)

IMPACTS

UNKNOWN*	NO IMPACTS	MINOR IMPACTS:*	POTENTIALLY SIGNIFICANT IMPACTS:*	CAN IMPACTS BE MITIGATED *	COMMENT INDEX
<p>8. <u>RISK/HEALTH HAZARDS</u></p> <p>Will the proposed action result in:</p> <p>a. Risk of an explosion or release of hazardous substances (including but not limited to oil, pesticides, chemicals, or radiation) in the event of an accident or other forms of disruption?</p> <p>b. Affect an existing emergency response or emergency evacuation plan or create a need for a new plan?</p> <p>c. Creation of any human health hazard or potential hazard?</p> <p>d. Other: _____</p>	<p>X</p> <p>X</p> <p>X</p>				

Note:

HUMAN ENVIRONMENT
(Continued)

IMPACTS

UNKNOWN*	NO IMPACTS	MINOR IMPACTS:*	POTENTIALLY SIGNIFICANT IMPACTS:*	CAN IMPACTS BE MITIGATED *	COMMENT INDEX
<p>9. <u>COMMUNITY IMPACTS</u></p> <p>Will the proposed action result in:</p> <p>a. Alteration of the location, distribution, density, or growth rate of the human population of an area?</p> <p>b. Alteration of the social structure of a community?</p> <p>c. Alteration of the level or distribution of employment or community or personal income?</p> <p>d. Changes in industrial or commercial activity?</p> <p>e. Increased traffic hazards or effects on existing transportation facilities or patterns of movement of people and goods?</p> <p>f. Other: _____</p>	<p>X</p> <p>X</p> <p>X</p> <p>X</p> <p>X</p>				

Note:

HUMAN ENVIRONMENT
(Continued)

IMPACTS

UNKNOWN*	NO IMPAIRS	MINOR IMPAIRS:*	POTENTIALLY SIGNIFICANT IMPAIRS:*	CAN IMPAIRS BE MITIGATED *	COMMENT INDEX
<p>10. <u>PUBLIC SERVICES/ TAXES/UTILITIES</u></p> <p>Will the proposed action:</p> <p>a. Have an effect upon or result in a need for new or altered governmental services in any of the following areas: fire or police protection, schools, parks/recreational facilities, roads or other public maintenance, water supply, sewer or septic systems, solid waste disposal, health, or other governmental services? If any, specify:</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>b. Have an effect upon the local or state tax base and revenues?</p> <p>c. Result in a need for new facilities or substantial alterations of any of the following utilities: electric power, natural gas, other fuel supply or distribution systems, or communications?</p> <p>d. Result in increased use of any energy source?</p> <p>e. Other: _____</p>	<p>X</p> <p>X</p> <p>X</p> <p>X</p>				

Note:

HUMAN ENVIRONMENT
(Continued)

IMPACTS

11. AESTHETICS/
RECREATION

Will the proposed action
result in:

a. Alteration of any scenic
vista or creation of an
aesthetically offensive site
or effect that is open to
public view?

b. Alteration of the
aesthetic character of a
community or
neighborhood?

c. Alteration of the quality
or quantity of recreational
opportunities and settings?

d. Other: _____

UNKNOWN*	NO IMPACTS	MINOR IMPACTS:*	POTENTIALLY SIGNIFICANT IMPACTS:*	CAN IMPACTS BE MITIGATED *	COMMENT INDEX
	X				
	X				
	X				

Note:

HUMAN ENVIRONMENT
(Continued)

IMPACTS

	UNKNOWN*	NO IMPACTS	MINOR IMPACTS:*	POTENTIALLY SIGNIFICANT IMPACTS:*	CAN IMPACTS BE MITIGATED *	COMMENT INDEX
12. <u>CULTURAL/ HISTORICAL RESOURCES</u>						
Will the proposed action result in:						
a. Destruction or alteration of any site, structure or object of prehistoric, historic, or paleontological importance?	X					12a.
b. Physical change that would affect unique cultural values?	X					12b.
c. Effects on existing religious or sacred uses of a site or area?	X					12c.
d. Other: _____						

Note: 12a, b, and c.) An assessment of cultural resources will be completed by the State Historic Preservation Office. The SHPO findings and recommendations will be incorporated in the final draft of the EA and Notice of Decision. The Nilan Project was recommended as ineligible for inclusion to the National Register in an assessment completed by the DNRC Archeologist. It is not anticipated that any cultural or historic resources would be impacted by the project.

**3. SIGNIFICANCE
CRITERIA**

IMPACTS

UNKNOWN*	NO IMPACTS	MINOR IMPACTS:*	POTENTIALLY SIGNIFICANT IMPACTS:*	CAN IMPACTS BE MITIGATED *	COMMENT INDEX
<p>13. SUMMARY EVALUATION OF SIGNIFICANCE</p> <p>Will the proposed action, considered as a whole:</p> <p>a. Have impacts that are individually limited, but cumulatively considerable? (A project or program may result in impacts on two or more separate resources which create a significant effect when considered together or in total.)</p> <p>b. Involve potential risks or adverse effects which are uncertain but extremely hazardous if they were to occur?</p> <p>c. Potentially conflict with the substantive requirements of any local, state, or federal law, regulation, standard or formal plan?</p> <p>d. Establish a precedent or likelihood that future actions with significant environmental impacts will be proposed?</p> <p>e. Generate substantial debate or controversy about the nature of the impacts that would be created?</p> <p>f. Other: _____</p>	<p>X</p> <p>X</p> <p>X</p> <p>X</p> <p>X</p>				

Note:

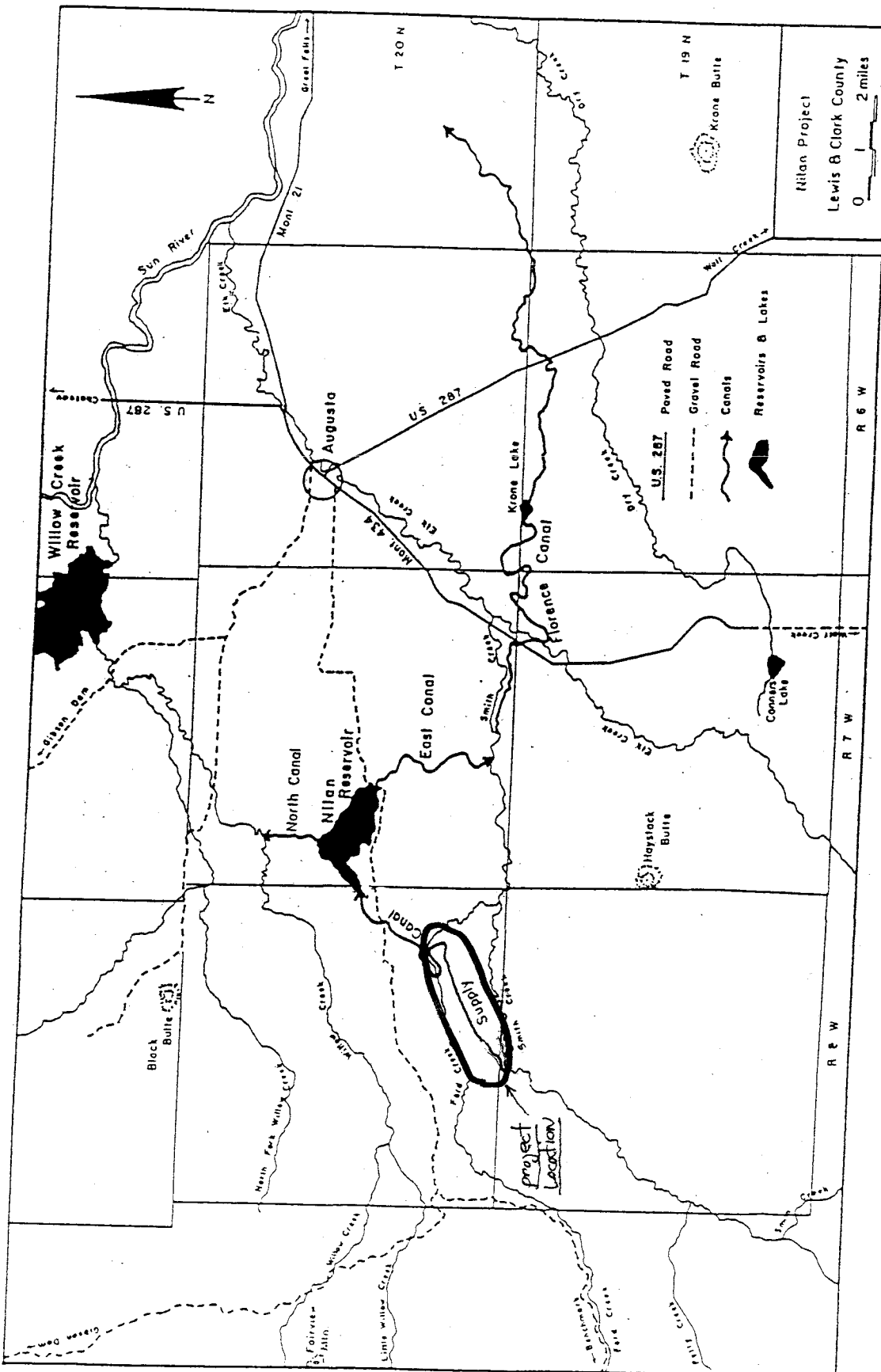


FIGURE 2. PROJECT AREA MAP

Appendix B

Tentative Project Schedule

The Nilan Water Users Association and the DNRC, State Water Projects Bureau, would perform the necessary work per the following general schedule:

TimeFrame	Activity
Early Winter 2005	EA and secure permits
Late Winter 2005	Meet on site with LF Ranch owners
Early Spring 2005	Stake easement boundary
Spring 2005 (before runoff)	Clean area around weir and headworks
Spring 2005	Remove vegetation and silt from canal
Spring 2005 (during runoff)	Perform water measurements in creek
Spring 2005 (before opening headgates)	Apply Canal Seal
Spring/Summer 2005	Measure seepage water loss in canal
Concurrent with rehabilitation	Replace culverts

Site and Facility Photographs:

NILAN PROJECT

Smith Creek Diversion Cleaning

May 2004 Photos Showing Areas to be Cleared Out

Red areas show brush and trees to be cleared and sediment removal areas. The blue area in Photo 5 shows water locations.



May Photo 1: Diversion Weir Showing Areas of Willows and Sediment to be Removed



May Photo 4: Vegetation and Sedimentation to be Removed at Headgate



May Photo 5: Flow Depth at Entrance to Headgate Should be Over Waist-deep



May Photo 8: Canal Starts to Open Up 1,000 feet Downstream, but Still Needs Cleaning



Figure 2: Typical 46" by 60" CMP arch culvert. Will be used to replace existing culverts.

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May Photo 1: Diversion Weir Showing Areas of Willows and Sediment to be Removed



May Photo 2: More Vegetation and Sediment at Weir



May Photo 3: More of Same



May Photo 4: Vegetation and Sedimentation to be Removed at Headgate



May Photo 5: Flow Depth at Entrance to Headgate Should be Over Waist-deep



May Photo 6: Overgrown Canal Flowing Approximately 6 cfs. Design is 200 cfs



May Photo 7: Trees and Brush Choking Canal Just Downstream of Headgate



May Photo 8: Canal Starts to Open Up 1,000 feet Downstream, but Still Needs Cleaning

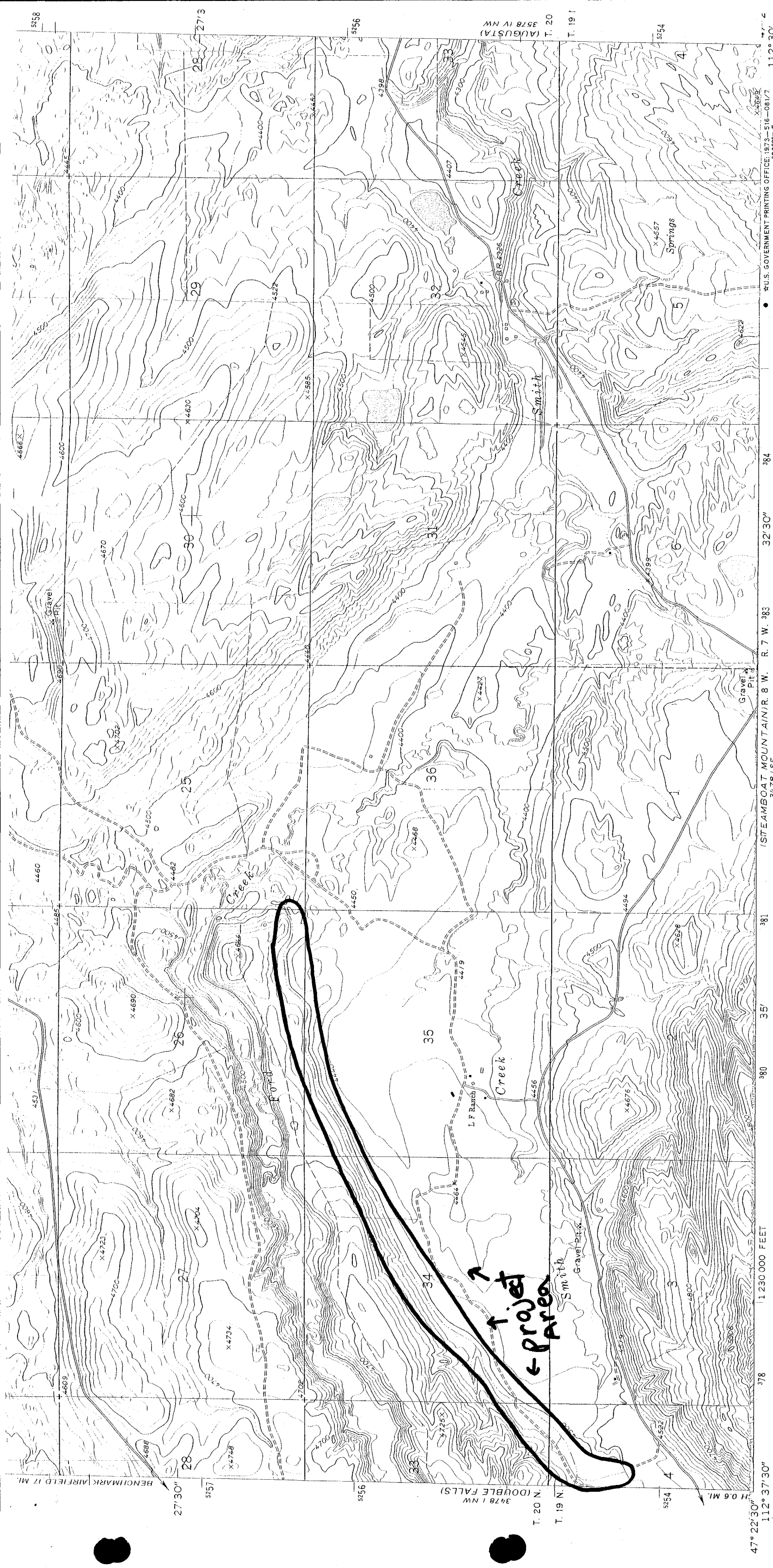
CANAL CROSSINGS The original easement for the Smith Creek diversion canal requires that the State build and maintain five 5-ton bridges over the canal. Per the request of a previous landowner, two of those bridges were constructed over Ford Creek at locations beneficial to the landowner. Three timber bridges were constructed over the canal. Those timber bridges have long since deteriorated to the point that they have been replaced with CMP culverts. Those culverts are grossly undersized for the capacity of the canal and will be replaced as part of the proposed rehabilitation. Current plans are to replace each undersized culvert with two 60-inch by 46-inch CMP arch pipes.



Figure 1: Existing 42-inch CMP culvert to be replaced. Note dilapidated timber bridge in background.



Figure 2: Typical 46" by 60" CMP arch culvert. Will be used to replace existing culverts.



Mapped, edited, and published by the Geological Survey

Control by USGS, USC&GS, and U.S. Forest Service
Topography by photogrammetric methods from aerial
photographs taken 1969. Field checked 1970

Polyconic projection. 1927 North American datum
10,000-foot grid based on Montana coordinate system,
central zone
1000-meter Universal Transverse Mercator grid ticks,
zone 12, shown in blue

Fine red dashed lines indicate selected fence lines

UTM GRID AND 1970 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS

FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR WASHINGTON, D. C. 20242
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

QUADRANGLE LOCATION

NILAN RESERVOIR, MONT.

N4722.5—W11230/7.5

1970

AMS 3478 (NE-SERIES V894)

RIGHT-OF-WAY EASEMENT DEED

KNOW ALL MEN BY THESE PRESENTS: That whereas, THE STATE WATER CONSERVATION BOARD of the State of Montana, hereinafter referred to as the "Board", proposes to construct an irrigation project in the County of Lewis & Clark, State of Montana, to be known as the Nilan Storage Project.

NOW, THEREFORE, in consideration of the sum of One Thousand Two Hundred Forty-two and 80/100 Dollars (\$ 1,242.80) to it

in hand paid, receipt of which is hereby acknowledged, J. B. LONG & CO., INC., a Montana Corporation of Great Falls, Montana, hereinafter referred to as the "Company", do hereby grant, bargain, sell and convey unto the said STATE WATER CONSERVATION BOARD of the State of Montana, its successors and assigns, a tract or tracts of land for a right-of-way for a canal of the Nilan Storage Project, as said canal is now constructed and located in the County of Lewis & Clark, Montana, and more particularly described, as follows:

Canal Right-of-Way
Smith Creek to Ford Creek

A tract of land in Townships 19 and 20 N. Range 8W, and more fully described as follows: A tract of land 30 feet wide on the upper side and 50 feet wide on the lower side, commencing at station 0.00 to station 156/69, and 30 feet wide on the upper side and 90 feet wide on lower side from station 156/69 to station 193/88, measured at right angles to a center line, beginning at a point in the southeast quarter of northeast quarter (SE $\frac{1}{4}$ NE $\frac{1}{4}$) of Section 4, Township 19N, Range 8W, which is a distance of 2754.0 feet S. 32 degrees 50' E. of the north quarter (N $\frac{1}{4}$) corner of section 4; thence N. 25° 00' W. a distance of 1025 feet; thence right on a curve having a 428.8 foot radius, a distance of 99.6 feet; thence N. 11° 42' W. a distance of 390.4 feet; thence right on a curve having a 221.7 foot radius, a distance of 187.5 feet; thence N. 36° 51' E. a distance of 97.5 feet; thence right on a curve having a 109.0 foot radius, a distance of 93.6 feet; thence N. 86° 09' E. a distance of 199.4 feet; thence left on a curve having a 236.2 foot radius, a distance of 79.2 feet; thence N. 66° 56' E. a distance of 227.8 feet; thence left on a curve having a 441.6 foot radius, a distance of 99.5 feet; thence N. 54° 01' E. a distance of 500.5 feet; thence left on a curve having a 232.7 foot radius, a distance of 98.4 feet; thence N. 29° 46' E. a distance of 451.6 feet; thence right on a curve having a 954.0 foot radius, a distance of 99.9 feet; thence 35° 46' E. a distance of 800.1 feet; thence right on a curve having a 255.2 foot radius, a distance of 98.6 feet; thence N57° 56' E. a distance of 501.4 feet; thence right on a curve having a 146.7 foot radius, a distance of 78.1 feet; thence N. 88° 26' E. a distance of 172.0 feet; thence left on a curve having a 127.6 foot radius, a distance of 77.5 feet; thence N. 53° 38' E. a distance of 272.5 feet; thence left on a curve having a 277.8 foot radius, a distance of 132.0 feet; thence N. 25° 21' E. a distance of 418.0 feet; thence right on a curve having a 239.7 foot radius, a distance of 98.6 feet; thence N. 48° 55' E. a distance of 501.4 feet; thence right on a curve having a 298.8 foot radius, a distance of 99.1 feet; thence N. 67° 55' E. a distance of 140.9 feet; thence left on a curve having a 421.8 foot radius, a distance of 79.8 feet; thence N. 57° 05' E. a distance of 780.2 feet; thence right on a curve having a 424.6 foot radius, a distance of 99.5 feet; thence N. 70° 31' E. a distance of 94.5 feet; thence left on a curve having a 600.7 foot radius, a distance of 99.8 feet; thence N. 61° 00' E. a distance of 480.2 feet; thence right on a curve having a 996.0 foot radius a distance of 199.3 feet; thence N. 72° 28' E. a distance of 0.0 feet; thence left on a curve having a 1130.3 foot radius, a distance of 220.7 feet; thence N. 61° 18' E. a distance of 0.0 feet; thence right on a curve having a 2238.0 foot radius, a distance of 182.2 feet; thence N. 65° 58' E. a distance of 225.8 feet; thence left on a curve having a 593.5 foot radius, a distance of 112.8 feet; thence N. 55° 02' E.

J. B. LONG & Co., Inc.

Right-of-Way Easement Deed

a distance of 194.2 feet; thence right on a curve having a 760.3 foot radius, a distance of 151.5 feet; thence N. $66^{\circ} 27'$ E. a distance of 1133.5 feet; thence left on a curve having a 725.6 foot radius, a distance of 99.8 feet; thence N $58^{\circ} 34'$ E. a distance of 580.2 feet; thence left on a curve having a 1201.3 foot radius, a distance of 100.0 feet; thence N. $53^{\circ} 48'$ E. a distance of 135.0 feet; thence right on a curve having a 329.6 foot radius, a distance of 128.4 feet; thence N. $76^{\circ} 07'$ E. a distance of 106.6 feet; thence right on a curve having a 594.4 foot radius, a distance of 99.8 feet; thence N. $85^{\circ} 44'$ E. a distance of 145.2 feet; thence left on a curve having a 256.4 foot radius, a distance of 98.8 feet; thence N. $62^{\circ} 40'$ E. a distance of 406.2 feet; thence right on a curve having a 151.1 foot radius, a distance of 96.5 feet; thence S. $80^{\circ} 43'$ E. a distance of 203.5 feet; thence left on a curve having a 214.9 foot radius, a distance of 98.3 feet; thence N. $73^{\circ} 05'$ E. a distance of 1.7 feet; thence right on a curve having a 191.5 foot radius, a distance of 97.7 feet; thence S. $77^{\circ} 40'$ E. a distance of 302.3 feet; thence left on a curve having a 126.5 foot radius, a distance of 95.2 feet; thence N. $59^{\circ} 13'$ E. a distance of 204.8 feet; thence left on a curve having a 291.2 foot radius, a distance of 99.0 feet; thence N. $39^{\circ} 44'$ E. a distance of 291.0 feet; thence right on a curve having a 129.3 foot radius, a distance of 95.4 feet; thence N. $82^{\circ} 01'$ E. a distance of 604.6 feet; thence right on a curve having a 137.7 foot radius, a distance of 95.9 feet; thence S $58^{\circ} 05'$ E. a distance of 264.1 feet; thence left on a curve having a 205.8 foot radius, a distance of 116.8 feet; thence N. $89^{\circ} 25'$ E. a distance of 258.2 feet; thence left on a curve having a 238.6 foot radius, a distance of 98.6 feet; thence N. $65^{\circ} 45'$ E. a distance of 302.6 feet; thence left on a curve having a 95.5 foot radius, a distance of 142.4 feet; thence N $20^{\circ} 05'$ W. a distance of 27.4 feet; thence right on a curve having a 120.0 foot radius, a distance of 94.8 feet; thence N. $25^{\circ} 09'$ E. a distance of 15.2 feet; thence left on a curve having a 102.0 foot radius, a distance of 108.2 feet; thence N. $25^{\circ} 48'$ W. a distance of 25.8 feet; thence left on a curve having a 310.4 foot radius, a distance of 99.2 feet; thence N. $54^{\circ} 06'$ W. a distance of 50.8 feet; thence right on a curve having a 106.4 foot radius, a distance of 93.4 feet; thence N. $3^{\circ} 46'$ W. a distance of 196.6 feet; thence left on a curve having a 128.0 foot radius, a distance of 95.6 feet; thence N. $46^{\circ} 26'$ W. a distance of 114.4 feet; thence right on a curve having a 96.2 foot radius, a distance of 108.8 feet; thence N. $17^{\circ} 27'$ E. a distance of 76.2 feet; thence left on a curve having a 119.4 foot radius, a distance of 94.6 feet; thence N. $27^{\circ} 59'$ W. a distance of 45.4 feet; thence right on a curve having a 139.3 foot radius, a distance of 96.0 feet; thence N. $11^{\circ} 30'$ E. a distance of 108.0 feet; thence left on a curve having a 95.7 foot radius, a distance of 141.1 feet; thence N. $73^{\circ} 01'$ W. a distance of 53.9 feet; thence left on a curve having a 2045.8 foot radius, a distance of 100.0 feet; thence N. $75^{\circ} 49'$ W. a distance of 251.0 feet; thence right on a curve having a 903.7 foot radius, a distance of 99.9 feet; thence N. $69^{\circ} 29'$ W. a distance of 335.1 feet; thence left on a curve having a 546.7 foot radius, a distance of 99.7 feet; thence N. $79^{\circ} 56'$ W. a distance of 106.3 feet; thence left on a curve having a 103.1 foot radius, a distance of 97.6 feet; thence S. $69^{\circ} 31'$ W. a distance of 70.4 feet; thence left on a curve having a 146.2 foot radius, a distance of 96.3 feet; S. $31^{\circ} 45'$ W. a distance of 204.7 feet; thence left on a curve having a 256.4 foot radius, a distance of 98.8 feet; thence S. $09^{\circ} 41'$ W. a distance of 128.2 feet; thence right on a curve having a 177.0 foot radius, a distance of 97.5 feet; thence S. $41^{\circ} 14'$ W. a distance of 375.5 feet; thence right on a curve having a 369.8 foot radius, a distance of 99.4 feet; thence S $56^{\circ} 38'$ W. a distance of 281.6 feet; thence right on a curve having a 524.8 foot radius, a distance of 99.7 feet; thence S. $67^{\circ} 31'$ W. a distance of 233.9 feet; thence right on a curve having a 382.0 foot radius, a distance of 102.2 feet; thence S $02^{\circ} 51'$ W. a distance of 274.6 feet; thence right on a curve having 630.6 foot radius, a distance of 99.8 feet; thence N. $88^{\circ} 05'$ W. a distance of 171.2 feet; and containing 4344 acres more or less.

Right-of-way
Ford Creek To Reservoir

A tract of land in Township 20 North, Range 0W, and more fully described as follows: A tract of land 30 feet wide on the upper side and 90 feet wide on the lower side from station 0.00 to station 41/83, and 30 feet wide on upper side and 50 feet wide on lower side from station 41/83 to station 95/41, measured at right angles to a center line, beginning at a point in Section 26, which is a distance of 3275.0 feet N. 72° 20' W. from southeast corner (SE) of section 26; thence N. 00° 25' W. a distance of 234.0 feet; thence right on a curve having a 206.5 foot radius, a distance of 346.1 feet; thence N. 68° 48' E. a distance of 103.2 feet; thence right on a curve having a 464.5 foot radius, a distance of 129.2 feet; thence N. 84° 44' E. a distance of 182.8 feet; thence left on a curve having a 124.5 foot radius, a distance of 115.2 feet; thence N. 46° 50' E. a distance of 130.8 feet; thence left on a curve having a 209.2 foot radius, a distance of 98.2 feet; thence N. 14° 05' E. a distance of 53.8 feet; thence right on a curve having a 169.0 foot radius, a distance of 97.2 feet; thence N. 47° 03' E. a distance of 232.8 feet; thence left on a curve having a 400.5 foot radius, a distance of 99.5 feet; thence N. 32° 49' E. a distance of 51.5 feet; thence right on a curve having a 364.6 foot radius, a distance of 99.4 feet; thence N. 48° 26' E. a distance of 156.6 feet; thence left on a curve having a 1102.4 foot radius, a distance of 199.4 feet; thence N. 38° 04' E. a distance of 275.6 feet; thence right on a curve having a 190.0 foot radius, a distance of 97.8 feet; thence N. 67° 33' E. a distance of 130.2 feet; thence right on a curve having a 136.5 foot radius, a distance of 95.9 feet; thence S. 72° 13' E. a distance of 61.1 feet; thence right on a curve having a 167.2 foot radius, a distance of 97.2 feet; thence S. 38° 55' E. a distance of 118.8 feet; thence left on a curve having a 180.3 foot radius, a distance of 97.6 feet; thence S. 69° 55' E. a distance of 335.4 feet; thence left on a curve having a 106.5 foot radius, a distance of 93.5 feet; thence N 59° 47' E. a distance of 423.5 feet; thence left on a curve having a 553.0 foot radius, a distance of 383.8 feet; thence N. 20° 01' E. a distance of 3760.2 feet; to a point on the north line of the southeast quarter southwest quarter (SE1/4SW1/4), Section 24, Township 20N, Range 0W, containing 19.00 acres more or less, for the said State Water Conservation Board, its successors and assigns, and its servants, agents and licensees at all times to pass and repass, to, from and upon the same, to build, construct, complete, operate and maintain an irrigation ditch or canal in whatever manner and according to whatsoever regulations said Board may devise or adopt, subject to the following reservations, restrictions and conditions:

1. That the Board will construct, or cause to be constructed, at its expense and thereafter keep in good repair, five farm bridges across said canal at such points thereon to be designated by the Company. Each of said bridges to be not less than sixteen feet wide, with side railing and a capacity of not less than five tons. The construction of said bridges to be done in such manner so as not to inconvenience the company in its ranch operations.
 2. That the Board shall not fence or cause to be fenced any part of the right-of-way above described and the Company shall not require the Board to fence any part of said right-of-way.
 3. That in the construction, operation and maintenance of the canal to be constructed on above said right-of-way, the Board agrees that wherever it may be necessary to interfere with the location of the presently located irrigation canals, or ditches of the Company that it will construct or reconstruct said ditch or ditches, wherever necessary in a manner satisfactory to the company, so as not to interfere with the irrigation of the lands presently being irrigated by the Company. The Board will construct a flume across its canal so Company can run water from its ditch on one side of the canal to its ditch on the other side and said flume is to be maintained in good repair and condition at all times by the Board.
- 3A; The water capacity of the canal is limited to 100 cubic feet per second, and the depth of the water cannot be over 2 1/2 feet deep.

4. The Company reserves the right to water and graze livestock on the right-of-way above described and the Board, its successors and assigns, shall not be liable for the drowning or injuring of livestock, and the Company and its assigns and successors assume the sole risk for watering and grazing of livestock on said right-of-way and the Board shall not be under obligation to protect such right, but the obligation to protect the same shall be on the one claiming such right.

5. In the construction of the canal system at the lake nearest to the county road in Section 24, Township 20N, Range 8W, the Board agrees to construct same in such manner so that the level of said lake will not be lowered below elevation 4457.50. The Board, however, shall not be required to maintain the water level in said lake at elevation 4457.50, but will not drain it below said level.

And the said GRANTOR hereby covenants that it will forever WARRANT and DEFEND all right, title, and interest in and to said premises, and the quiet and peaceable possession thereof, unto the said GRANTEE, and assigns, against the acts and deeds of said grantor, and all and every person and persons whomsoever lawfully claiming or to claim the same.

IN WITNESS WHEREOF, said GRANTOR has caused its corporate name to be subscribed and its corporate seal to be affixed, by its proper officers, thereunto duly authorized, on this 16th day of April, A.D. 1951.

J. B. LONG & CO., INC.

By C. W. Johnston

President

Secretary

STATE OF CALIFORNIA

County of Kern ss.

On this 16th day of April in the year 1951, before me

MILDRED UHLER

For the County of Kern,

State of California, personally appeared

C. W. JOHNSTON

A Notary Public in and

known to me (or approved before me on oath

) to be the President

of the corporation that executed the within instrument and

acknowledged to me that such corporation executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year in this certificate first above written.

State of Montana

County of Lewis & Clark ss.

I hereby certify that the within instrument was filed in my office on this 16 day of May A.D. 1951 at 2:00 min. past 9 o'clock A.M. and recorded on page 47 of Book 164 of Deed Records of Lewis and Clark County, State of Montana.

Florence Thiel
County Recorder.

By

Deputy.

W. Lee - Hunt

Mildred Uhler
Notary Public for the County of Kern, State of California, Residing at Bakersfield, California. My commission expires October 16, 1953.

